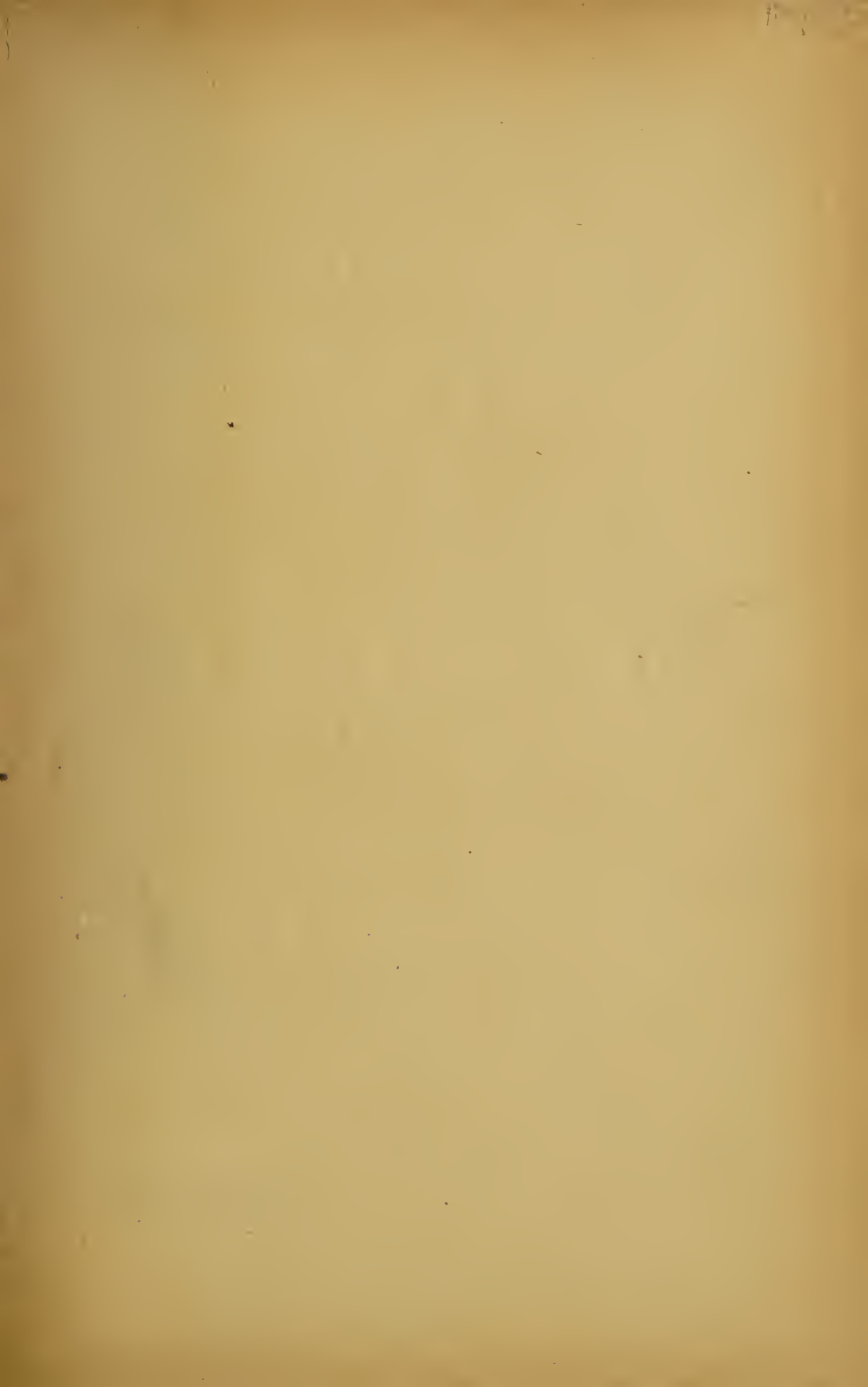


How To Do



HOW TO DO

A CONSULTING LIBRARY
FOR EVERY WANT

BY

L. W. YAGGY,

AUTHOR OF

"Our Home Counselor,"
"The Royal Path of Life,"
"Anatomical Study for Schools,"
"The Royal Scroll,"
Etc., Etc.



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SECOND EDITION

PREFACE.

The design of the present work is briefly but not completely indicated in the title page. In bringing out "HOW TO DO" the author has been influenced principally by a realization of the distinct want for such a work and his belief in its utility if properly presented. The wisdom of this age has been to bring Science from her heights down to the practical knowledge of everyday concerns. The number of its inventions and discoveries has kept pace with the increasing wants of man; yet we cannot help but observe that the application of this knowledge to the needs of everyday life is both slow and inadequate. There are countless situations in our busy life of today where terse, convenient and, above all, reliable, information is absolutely essential,—when it would mean money in the bank for us to be told in practical fashion how to do; how to mend, as well as make; how to save, as well as get; how "to make two blades of grass grow where one grew before;" in short, how to make one dollar do the work of two. To supply all this, and much more, is the reason for the existence of this work.

Many works of this nature there are in existence, but most of them are not adapted for popular use. Of these are the strictly technical works, also the more profound, voluminous treatises, most of which are both costly and unwieldy; others are the cheap, poorly-edited volumes of little or no authenticity. The sources from which I have derived the vast mass of materials forming this work are such as to render it deserving of the utmost confidence. I have invariably resorted to the best and latest authorities and have consulted almost innumerable volumes, German, French and English, during its compilation. Secondary channels of information have been scarcely ever relied on when original authorities were within my reach. The indiscriminate adoption of matter without examination has been uniformly avoided, and in no instance has any formula or process been admitted into this work unless it rested on some well-known fact of science, had been sanctioned by usage, or come recommended by some respectable authority. Those processes which long experience or well-endorsed experiments have shown to be the most successful, profitable and trustworthy have been accepted, and whenever different processes of equal value for attaining the same end have been found, more than one has been introduced.

I have endeavored to render this work as self-explanatory as possible, and in general have appended ample directions to the several formulæ and processes

which seemed to me likely to cause embarrassment to those inexperienced in chemical manipulations. I would recommend in regard to the use of these receipts that great care should be taken to use the exact proportions prescribed, and manipulate as directed. It might even be well to experiment first with small quantities. Should the first attempt prove unsuccessful, do not condemn the recipe, but make another trial, as the fault can generally be traced to a mistake in the manipulation or an error in the quantities, or, possibly, poor materials.

Independently of a reliable and comprehensive collection of formulæ and processes in nearly all the industrial and useful arts, this work contains a description of the leading properties and applications of the substances referred to, together with ample directions, hints, data and allied information calculated to increase the practical value of the book in the household, the shop, the factory and the laboratory.

One favorable sign of the times is the growing appreciation of the fact that a good knowledge of household management and a practical acquaintance with cooking are important features of the modern woman's education. Let every girl add to her other accomplishments culinary skill, learning the theory of cooking as she would that of any other art. In this, our department on cooking comes to her aid. It teaches her how to market discriminately and how to select judiciously so as to obtain at the slightest possible cost the most nutritious and palatable food, and how to detect adulterations in different articles of diet. It teaches how to render meats most tender, succulent and dainty; how to make the most of few materials; how to contrive substitutes for lacking ingredients in a made dish; how to utilize "left overs" successfully; the right proportions of flavoring; the right time to allow for cooking any dish she has to prepare. If occasionally the instructions should appear too minute or simple, let our readers remember that this is an exhaustive work, meant for the untaught as well as the most experienced cook, and that the information which they personally may not require is of great value to the inexperienced housewife who has to puzzle her way through the preparation of even a simple dish.

The frequency of accidents of all kinds and also of sudden attacks of painful diseases renders it necessary that the nonprofessional should possess sufficient knowledge to enable them to employ the proper means for temporary relief, at least. The author of this work, in undertaking the preparation of the medical department, realized to the fullest extent the great importance of its production in a careful and thorough manner. To accomplish this it was necessary to place the department above the merest suspicion of weakness or inefficiency. It was a matter of no small difficulty to secure as its author Dr. Robert G. Marriner, a physician standing at the head of his profession,—an eminently successful practitioner, formerly of Chicago, now of Menominee,

Michigan. He has not been selfishly actuated by financial remuneration only to do this work; but inspired by a spirit of philanthropy, by a generous desire to benefit mankind, he has written for the good of the people.

It is highly desirable that the public should learn to appreciate the true position of the scientific physician,—to recognize not only what he is able to accomplish, but also what he can not do. In the care of the body, it is preeminently true that “an ounce of prevention is worth a pound of cure.” This fact has guided the author in his work. While he has in every case presented the latest and most approved treatment for the various diseases which affect so large a portion of humanity, he has especially endeavored to furnish such information as may protect against the attack of these diseases. The author feels that in this attempt to popularize medical science he has rendered a service to his professional brethren as well as to the public at large. A little knowledge is a dangerous thing for a patient to possess. It makes him the prey and plunder of every advertising quack. The more intelligent a patient becomes the more he appreciates the absurdity of remedies advertised to cure any one of forty distinct and different complaints. He realizes that medicine is not magic or sleight-of-hand, but an art founded on science. There are many works which are of incalculable value to the physician who is learned in all the technicalities of his profession, but most of them are but as sealed letters in the hands of the multitude. The author has departed from the ordinary path of scientific writers and has given us this matter in plain language and as free as possible from technical terms.

I beg to solicit my readers to apprise me of any inaccuracies or omissions in this volume which may come to their notice. I shall also thankfully receive any hints or suggestions tending to the improvement of further editions of this work.

Yours truly,

L. W. YAGGY.

(Lake Forest)

CHICAGO, July 1, 1902.

PUBLISHERS' ANNOUNCEMENT.

This is our first book. For fifteen years we have published Home Educational ideas. Our purpose is to publish them indefinitely, for just as we are the pioneers, so we hope to continue permanently foremost in this line of educational specialties. To our patrons, who have in the past few years grown to millions, and to the public in general, we wish to make the following explanation for bringing out "HOW TO DO."

Our author, Mr. Yaggy has been prominently before the reading public for thirty years. His "Home Counselor," "Royal Path of Life," "Anatomical Charts," "Royal Scroll," etc., etc., have for years delighted and instructed not only American homes, but have been translated and have found a welcome in many foreign countries. Just before he sailed for Europe in 1898, he told us he had been working on an idea in which he felt there were wonderful possibilities. In order to further develop the work he had decided to spend several years in Europe, where his wide acquaintance would give him access to every possible source of information along the line of his investigations. He realized that in Europe a scientist is willing to spend his life on one phase of a problem, satisfied if he can add new knowledge to that subject. Thus he spent nearly three years among scientists and libraries of the Old World. Upon his return he called upon us and showed us his plan. Briefly stated, it was to put scientific and technical knowledge to household and business use. How well he has succeeded even a superficial study of "HOW TO DO" will show, but only constant use can demonstrate its practical value to man, woman and child.

The plan has been to make a work which should be a manual for everyday use,—something which will help a man, whether he is going fishing or making a business trip; buying a horse or building a house; which will help him make more money or save what he has; a book which will solve the problems of the busy housewife; help her entertain a party or cure the croup; something that will teach the child to grow up physically strong and morally right. In a word a book for all.

This book is the result of the experience of the most able and practical men. It is helpful to sit beside one man of wide knowledge and learn what life has taught him. In "HOW TO DO" we have the concentrated wisdom of many specialists, given in their mature life, when each man was able to offer advice on just those subjects of which he was master. Our prescriptions for medicine and recipes for cooking are the most rare, reliable and economical ever published, and every one of them has been tested and approved by eminent specialists. The work is extremely comprehensive; the plan is simplicity itself. The Index is so complete that it is possible to find under any important word in a subject everything in the book pertaining to it.

POWERS, HIGLEY & COMPANY.

CHICAGO, July 1, 1902.

*Empty your purse into your head, and no man
can take it from you.*

Accidents—To Avoid and Prevent.

In walking the streets keep out of the line of cellars, and never look one way and walk another.

Never ride with your arm or elbow outside any vehicle.

Never alight from a car while in motion.

In stepping from any wheeled vehicle while in motion, let it be from the rear, and not in front of the wheels; for then, if you fall, the wheels cannot run over you.

Never attempt to cross a road or street in a hurry, in front of a passing vehicle; for if you stumble or slip you will be run over.

Make up the half minute lost in waiting until the vehicle has passed by increased diligence in some other direction.

In a run-away it is safer, as a rule, to keep your place and hold fast than to jump out. Getting out of a carriage over the back, provided you can hold on a little while, is safer than springing from the side.

Be particularly cautious when upon or in the vicinity of water.

During a time of lightning avoid the neighborhood of trees, or any leaden spout, iron gate, or other conductor of electricity.

Lay loaded guns in safe places, and never imitate firing a gun in jest.

Never sleep near lighted charcoal; if drowsy at any work where charcoal fires are used, take the fresh air.

Never blow out the gaslight, but turn it off, and before retiring see that none of it escapes.

When benumbed with cold beware of sleeping out of doors; exercise yourself vigorously; rub yourself, if able, with snow, and do not hastily approach the fire.

If caught in a drenching rain, or if you fall into the water, keep in motion sufficiently vigorous to prevent the slightest chilly sensation until you reach the house; then change your clothing with great rapidity before a blazing fire, and drink instantly a pint of some hot liquid, not spirituous.

Before entering vaults or dry wells see if a lighted candle will burn at the bottom; for if not, animal life cannot exist, and the foul air in it should be replaced by pure air before entering therein.

Never leave saddle or draught horses, while in use, by themselves; nor go immediately behind a led horse, as he is apt to kick.

Ride not on footways, and walk not on carriage roads or railroad tracks.

Be wary of children, whether they are up or in bed, and particularly when they are near the fire, an element with which they are very apt to amuse themselves.

Leave nothing poisonous open or accessible, and never omit to write the word "poison" in large letters upon it, wherever it may be placed.

Never meddle with gunpowder by candlelight.

Never throw pieces of orange peel on the sidewalk, or throw broken glass bottles into the streets

Never trim or fill a kerosene lamp while lighted, and never light a fire with kerosene or coal oil.

Keep lucifer matches in their cases, and never let them be strewed about.

During frosty weather take extra care in walking.

Before retiring for the night, carefully look through the house to see that everything is as it ought to be.

In replenishing a lamp with naphtha never fill it. Leave space for the spirit to expand with warmth.

Never quit the room leaving a poker in the fire.

Do not rake out fires at bed-time, as hot cinders are apt to be scattered about; it is better to let the fire burn itself out.

Avoid reading in bed at night, as besides the danger of an accident, the practice is very injurious to the eyes.

Beware of damp clothes.

When the brass rod of the stair-carpet becomes loose, fasten it immediately.

Never allow your servants to leave brooms, brushes, slop-pails, water-cans etc., in outside doorways, or at the head of a flight of stairs when engaged in housework.

Should an infant lay hold of a knife or razor, do not try to pull it away, or to force open the hand; but, holding the child's hand that is empty, offer to its other hand anything nice or pretty, and it will immediately open the hand, and let the dangerous instrument fall.

Acrostics.

The acrostic is a short poem in which the first letters of each line, read in their order, form a name, word or sentence. The word comes from the Greek akros, at the point or end, and stichos, order or line. The acrostic

was formerly in vogue for valentine and love verses. When employed as a riddle it is called a Rebus.

Acrostics—Double.

This very fashionable riddle is a double Rebus, the initial and final letters of a word or words selected making two names or two words. The usual plan is to first suggest the foundation words, and then to describe the separate words, whose initials and finals furnish the answer to the question Thus:—

A party to charm the young and erratic—

But likely to frighten the old and rheumatic;

1 The carriage in which the fair visitors came:

2 A very old tribe with a very old name;

3 A brave Prince of Wales free from scandal or shame.

The answer is Picnic.

1 P Phaeton N

2 I Iceni I

3 C Caradoc C

sometimes the Double Acrostic is in prose, as in this brief example: A Briton supports his wig, his grandmother, his comfort and his countrywomen. The answer is, Beef—Beer; Bob, Eve, Ease, Fair.

Acrostics—Triple.

Are formed on the same plan, three names being indicated by the initial, central, and final letters of the selected words.

Agreements Should Be of Mutual Interest.

If one party agrees to stay with another, and give gratuitous services with the view of acquiring knowledge of a business, and the other party does not agree to employ and teach, the agreement is void, as being without consideration.

Age—How to Tell a Person's.

Show this table to your friend, and ask him to say in which column or columns his age is to be found, then add together the figures at the top of these columns and the secret is yours. Thus, suppose 21 to be the age; this number occurs in the first, third and fifth columns; add the top figures of the three, and we have 21, the number required.

1	2	4	8	16	32
3	3	5	9	17	33
5	6	6	10	18	34
7	7	7	11	19	35
9	10	12	12	20	36
11	11	13	13	21	37
13	14	14	14	22	38
15	15	15	15	23	39
17	18	20	24	24	40
19	19	21	25	25	41
21	22	22	26	26	42
23	23	23	27	27	43
25	26	28	28	28	44
27	27	29	29	29	45
29	30	30	30	30	46
31	31	31	31	31	47
33	34	36	40	48	48
35	35	37	41	49	49
37	38	38	42	50	50
39	39	39	43	51	51
41	42	44	44	52	52
43	43	45	45	53	53
45	46	46	46	54	54
47	47	47	47	55	55
49	50	52	56	56	56
51	51	53	57	57	57
53	54	54	58	58	58
55	55	55	59	59	59
57	58	60	60	60	60
59	59	61	61	61	61
61	62	62	62	62	62
63	63	63	63	63	63

Air.

A gaseous substance forming atmosphere of earth. Averages 100 miles thick, pressure on sea level 15 pounds to square inch. Adult inhales one gallon a minute — 30 ounces of oxygen

daily. British hospitals need 1,200, Indian 1,800 cubic feet per bed. Carbonic acid averages .03 in country, .30 in crowded theater. Air has been frozen solid by Professor Dewar—though he has failed to solidify pure oxygen—by a double set of vacuum screens, combined with two powerful air-pumps. Professor Dewar has also conveyed liquid air from London to Cambridge in double glass flasks, the space between the two containing extremely attenuated mercurial vapor, together with a little liquid mercury.

Alabaster.

Soft white semi-transparent stone, used for perfumes, ornaments, and (heated to powder) Plaster of Paris. Best alabaster comes from Tuscany.

Alabaster—To Clean.

Wash with soap suds. If stained, whitewash the stains; let the whitewash remain on several hours, then clean it off.

Another.—Take ground pumice stone of the finest quality, and mix it up with verjuice; let it stand for two hours, then dip in a sponge and rub the alabaster therewith; wash it with a linen cloth and fresh water, and dry it with clean linen rags.

Alabaster—To Harden and Polish.

Take a strong solution of alum, strain it, and put it into a wooden trough sufficiently large to contain the figure which must be suspended in it by means of a thread of silk; let it rest until a sufficient quantity of the salt is crystallized on the cast, then withdraw it, and polish it with a clean cloth and water.

Another.—Take white wax; melt it in a convenient vessel, and dip the cast or figure into it; withdraw and repeat the operation of dipping until the light wax rests upon the surface of the cast then let it cool and dry, when it must be polished with a clean brush.

Alabaster—To Polish.

Rub first with pumice-stone and then with a paste made up of whitening, soap and milk (or water), and finish off with a dry flannel.

Another method is to first rub with dried shave-grass, and then with finely-powdered slaked lime made into a paste with water. Then rub with French chalk, powder, or putty powder, until the required polish is produced.

Alabaster—Calcareous.

Is cleaned with a brush and warm water and soap, or with warm water with a small quantity of ammonia, or soda, being afterwards rinsed in clean water. If it is much stained, cover the article for twenty-four hours in a paste of slacked lime and water, and then wash with soap and water.

Alcohol—Percentage of in Wines and Spirits.

Beer.....	4.0	Canary.....	18.8
Porter.....	4.5	Sherry.....	19.0
Ale.....	7.4	Vermouth...	19.0
Cider.....	8.6	Cape.....	19.2
Perry.....	8.8	Malmsey....	19.7
Elder.....	9.3	Marsala....	20.2
Moselle.....	9.6	Ratafia.....	21.0
Tokay.....	10.2	Madeira.....	21.0
Rhine.....	11.0	Port.....	23.2
Orange.....	11.2	Curagoa....	27.0
Bordeaux....	11.5	Aniseed....	33.0
Hock.....	11.6	Maraschino. .	34.0
Gooseberry..	11.8	Chartreuse. .	43.0
Champagne..	12.2	Gin.....	51.6
Claret.....	13.3	Brandy.....	53.4
Burgundy...	13.6	Rum.....	53.7
Malaga.....	17.3	Irish Whisky.	53.9
Lisbon.....	18.5	Scotch Whisky	54.3

Mulhall.

Alloy (Anti-Friction)—For Journal Boxes

Zinc, 17 parts; copper, 1 part; antimony, $1\frac{1}{2}$ parts. This possesses unsurpassable anti-friction qualities, and

does not require the protection of a harder metal.

Another.—The best alloy for journal boxes is composed of copper, 24 lbs.; tin, 24 lbs.; and antimony, 8 lbs. Melt the copper first, then add the tin, and lastly the antimony. It should first be run into ingots, then melted and cast in the form required for the boxes.

Alloy—Incorrosive.

By preparing an alloy of 97 parts lead to 3 parts tin, a metal is produced upon which the action of pure water is very much decreased; and by using an alloy of 95 parts lead to 5 parts tin, we have a metal on which the action of pure water is scarcely perceptible.

Alloy—For Soldering Iron to Steel, or Either of These to Brass.

This alloy consists of 3 parts of tin, $39\frac{1}{2}$ of copper, and $7\frac{1}{2}$ of zinc. When applied in a molten state, it will firmly unite the metals first named.

Antimonoid.

A welding power, named antimonoid, has been in use for some time past in Germany, and found to be of great efficiency. It consists of four parts of iron turnings, three parts of borax, two parts of borate of iron, and one of water.

Ashberrium.

This name has been applied to an alloy which consists of 80 parts of tin, 14 of antimony, 2 of copper, 2 of nickel, 1 of alimonium, and 1 of zinc.

Amalgam—For Electrical Machines.

Zinc and tin, of each one part, quicksilver, two parts. Melt the tin and zinc, add the mercury made hot, pour the mixture into a wooden box, and shake until cold.

Another.—Zinc, 2 parts; tin, 1 part; quicksilver, 3 parts.

Another.—Zinc, 2 parts; tin, 1 part; quicksilver, 5 parts.

Another.—Quicksilver, 6 oz.; beeswax, $\frac{1}{2}$ oz.; zinc, 2 oz.; grain tin, 1 oz.

Another.—Bœttger recommends an amalgam made of two parts by weight of zinc, mixed, while melted, with one part of mercury. He finds it superior to the amalgam commonly used.

Amalgam—For Gold and Silver.

Place one part of gold in a small iron saucepan or ladle, perfectly clean, then add 8 parts of mercury, and apply a gentle heat, when the gold will dissolve; agitate the mixture for one minute, and pour it out on a clean plate or stone slab.

For gilding brass, copper, etc. The metal to be gilded is first rubbed over with a solution of nitrate of mercury and then covered with a very thin film of the amalgam. On heat being applied the mercury volatilizes, leaving the gold behind.

A much less proportion of gold is often employed than the above, where a very thin and cheap gilding is required, as by increasing the quantity of the mercury, the precious metal may be extended over a much larger surface. A similar amalgam prepared with silver is used for silvering.

Amalgam—For Mirrors.

Lead and tin, each 1 oz.; bismuth, 2 oz.; mercury, 4 oz.; melt as before, and add the mercury. These are used to silver mirrors, glass globes, etc., by warming the glass, melting the amalgam, and applying it.

American Holidays.

1st Jan. New Year's Day.
22nd Feb. Washington's Birthday.
30th May. Decoration Day.
4th July. Independence Day
1st Monday
in Sept. Labor Day.
1st Tu. aft. 1st
Mon. in Nov. Election Day.

Last Thursday

in Nov. Thanksgiving Day.

25th Dec. Christmas Day.

Anagrams.

Anagrams (from ana, backwards, and gramma, a letter) are formed by the transposition of the letters of words or sentences, or names of persons so as to produce a word, sentence, or verse, of pertinent or of widely different meaning. They are very difficult to discover, but are exceedingly striking when good. The following are some of the most remarkable:—

Words.

Tanspositions.

Astronomers.	No more stars.
Catalogues.	Got as a clue.
Elegant.	Neat leg.
Impatient.	Tim in a pet.
Immediately.	I met my Delia.
Masquerade.	Queer as mad.
Matrimony.	Into my arm.
Melodrama.	Made moral
Midshipman.	Mind his map.
Old England.	Golden-land.
Parishioners.	I hire parsons.
Parliament.	Partial men.
Penitentiary.	Nay I repent it.
Presbyterian.	Best in prayer.
Radical Reform.	Rare mad frolic.
Revolution.	To love ruin.
Sir Robert Peel.	Terrible poser.
Sweetheart.	There we sat.
Telegraphs.	Great helps.

Anchovy Butter.

Serape the skin from a dozen fine anchovies, take the flesh from the bones, pound it smooth in a mortar; rub through a hair sieve, put the anchovies into the mortar with three-quarters of a pound of fresh butter, a small quantity of cayenne, and a saltspoonful of grated nutmeg and mace; beat together until thoroughly blended. If to serve cold, mold the butter in small shapes, and turn it out, For preservation, press the butter into jars and keep cool.

Anglo-Japanese Work

This is an elegant and easy domestic art. Take yellow withered leaves, dissolve gum, black paint, copal varnish, etc. Any articles, such as an old tea-caddy, flower-pots, fire-screens, screens of all descriptions, work-boxes, etc., may be ornamented with these simple materials. Select perfect leaves, dry and press them between the leaves of books; rub the surface of the article to be ornamented with fine sand-paper then give it a coat of fine black paint which should be procured mixed at a color-shop. When dry rub smooth with pumice-stone, and give two other coats. Dry. Arrange leaves in any manner and variety, according to taste. Gum the leaves on the under side, and press them upon their places. Then dissolve some isinglass in hot water, and brush it over the work. Dry. Give three coats of copal varnish, allowing ample time for each coat to dry. Articles thus ornamented last for years and are very pleasing.

Aniline.

Aniline, product of dry distillation of Indigo (anil in Portuguese) originally, but now of coal tar. Powerful poison which unites with acids to form salts, and gives very strong dyes. Germany monopolizes manufacture.

Aniline Colors—To Make Soluble in Water.

The aniline colors insoluble in water, may, according to Dr. Zinsman, who publishes the process, be made to dissolve in that menstruum in the following way: A solution of gelatine in acetic acid of about the consistency of syrup is first made, and the aniline color in fine powder is gradually added, stirring all the time so as to make a homogeneous paste. The mixture is then to be heated over a water bath to the temperature of boiling water, and kept at that heat for some time. Colors in this

state, if a very clear gelatine is employed, will be applicable to many decorative purposes. Bookbinders, paper-stainers, and printers will find them useful. They may also, we read, be used to color confectionery and soaps. Before they are used for confectionery, however, it will be well to make sure that no arsenic is present.

Animals—Effect of Kindness On.

The law that is to usher in the advent of the Golden Age is the law of kindness—the law of love between man and man. If this law, or even a portion of it, be applied by man to the government, or rather the directing of the so-called “brute” creation, it will be wonderful how easily they can be brought under subjection and control. The efficacy of the soothing word, the gentle touch, has only to be honestly tried to be fully appreciated. It may be set down as a fixed fact that whenever a horse or a cow or an ox is timid and shy—will not allow a person to approach or handle, unless it is so situated that it cannot escape—a wrong system of treatment has been pursued. The animals of the farmer are naturally disposed to be docile and affectionate. They recognize the voice and hand of a friend almost as soon as a human being would, and manifest their affection in a variety of ways, which none but the kind master or keeper will observe. Have you not seen teamsters who could manage their teams by a soft word far better than others could do by blows and harsh words? I have. Have you not seen a milkmaid approach a cow with a bucket without the slightest evidence of a disposition on the part of the animal to evade her? And have you not seen the same cow make every effort to to escape from the next milkmaid who approaches her? I have, and the reason was that the first had always treated her kindly and gently,

while the latter had pursued the opposite method. Animals almost invariably partake of the character of their masters. The kind, gentle and considerate master will generally have kind, gentle animals; while the rude, impetuous and cruel master will rarely fail to have animals whose dispositions will mate with his own. Is not gentleness the true method? I think so. God has given these poor brutes for our use, they minister to our wants, are patient and uncomplaining, and certainly deserve such treatment at our hands as will show that we properly appreciate the kindness of the Almighty in giving them to us for the purpose of adding to our comfort.

Animals—Duration of Life.

	Years.
Elephant.....	100 and up
Rhinoceros.....	20
Camel.....	100
Lion.....	25 to 70
Tigers, confinement.....	about 25
Leopards, confinement....	about 25
Jaguars, confinement....	about 25
Hyanas, confinement....	about 25
Beaver.....	50
Deer.....	20
Wolf.....	20
Fox.....	14 to 16
Llamas.....	15
Chamois.....	25
Monkeys.....	16 to 18
Baboons.....	16 to 18
Hare.....	8
Squirrel.....	7
Rabbit.....	7
Swine.....	25
Stag.....	under 50
Horse.....	30
Ass.....	30
Sheep.....	under 10
Cow.....	20
Ox.....	30
Swans.....	200
Parrots.....	200
Ravens.....	200
Eagle.....	100

	Years.
Geese.....	80
Hens.....	10 to 16
Pigeons.....	10 to 16
Hawks.....	30 to 40
Crane.....	24
Blackbird.....	10 to 12
Peacock.....	20
Pelican.....	40 to 50
Thrush.....	8 to 10
Wren.....	2 to 3
Nightingale.....	15
Blackcap.....	15
Linnet.....	14 to 23
Goldfinch.....	20 to 24
Redbreast.....	10 to 12
Skylark.....	10 to 30
Titlark.....	5 to 6
Chaffinch.....	20 to 24
Starling.....	10 to 12
Carp.....	70 to 150
Pike.....	30 to 40
Salmon.....	16
Codfish.....	14 to 17
Eel.....	10
Crocodile.....	100
Tortoise.....	100 to 200
Whale, estimated.....	1000
Queen Bees.....	4
Drones.....	4 months
Worker Bees.....	6 months

Animal Records.

Horses and ponies are often taken up in balloons, and Madame Portevin ascended as "Europa" on the back of a bull. Apart from toads and bats, about which there is great doubt, serpents can go longer without food than any other animals. One in the menagerie of the French Museum refused to eat for twenty-two months. An anaconda in the same menagerie only had thirty-four meals in 5½ years. A horse has been known to live 17 days without eating or drinking, and 25 days without eating. The flying lemur can leap on an inclined plane 300 feet. Kangaroos easily jump 60 to 70 feet in length though they cannot jump more than about 14 feet high. A flea can jump an

obstacle 500 times its own height, and a grasshopper can jump 200 times its own length. The famous steeplechaser, The Chandler, jumped 39 feet at Warwick. Lions and tigers jump about 19 feet when springing on their prey. Salmon frequently jump 15 feet high. The mina bird excels all other animals in its power of imitating, especially imitating human speech. The specimen in the Zoo in Regent's Park speaks, laughs, and talks like a man. The leech has three jaws, each fitted with 80 to 90 teeth. It is very sensitive, and will not settle on the skins of people who are under the influence of certain narcotics or alcohol. The cuttlefish "walks" on its head, with its mouth touching the ground, and the arms extended or contracted on opposite sides alternately. Snakes have an enormous number of ribs. The boa constrictor has 320 pairs of them.

Annealing.

Process of cooling matter slowly from great temperature, by which the particles are arranged in uniform way, e.g. in glass. Badly annealed glass will break with sudden change of temperature. Cast-iron is annealed for tinning and other metals for various purposes.

Annuals.

Plants which complete their whole development in one season, i.e. germinate, flower, seed, die. In gardening, annuals are divided into hardy, half-hardy, and tender, the latter needing artificial shelter and heat throughout.

Antique Painting.

Apply with a stiff brush a very thin coat of Antique varnish, which will be thoroughly dry in six hours; then apply another coat of the same, thin and very equal and smooth; allow this to dry one hour or until nearly dry, strongly adhering to the finger when touched, but not sticky. Then put on the engraving (having dampened it thoroughly

with warm water, not too wet, absorbing the extra moisture with a cloth or blotter), with the face to the varnished side of the glass; press it gently until every part adheres to the surface, rub carefully with your finger a part of the figure, being sure not to rub through the engraving; after it has dried twelve hours, wet again and rub off all the paper leaving only the engraving; when again dry moisten carefully with fine bleached drying oil. It is then fit for painting. The colors will strike through very freely, as there is no paper left, and will not spot as the Grecian is liable to do. Do not use any turpentine in this style. The directions are the same as for Grecian painting, except more pains should be taken to shade and blend in the colors, to help the shading in the engraving, particularly the flesh-color with the hair.

Antlers.

Horns of the deer. Except in the reindeer, restricted to the males, for fighting. Year after birth they remain unbranched conical "beams"; second year have first branch on "brow," and so on for many years. Sixty branches or "tines" have been found on most magnificent heads.

Ants—To Destroy and Banish.

Perfect cleanliness. Pulverized borax sprinkled in places they frequent. A few leaves of green wormwood, scattered among their haunts. The use of camphor. A sponge can be sprinkled with sugar and laid upon shelves when ants are numerous; the next morning plunge quickly into boiling water, and most of the intruders will be destroyed. Carbolic acid wiped around the edges of the shelves and wherever they seem to come from.

Ants—To Destroy.

Drop some quicklime on the mouth of their nest, and wash it in with boiling water; or dissolve some camphor in

spirits of wine, then mix with water, and pour into their haunts; or tobacco-water has been found effectual. They greatly dislike strong scents. Camphor, or a sponge saturated with creosote, will prevent their infesting a cupboard. To prevent their climbing up trees, place a ring of tar about the trunk, or a circle of rag moistened with creosote.

Sprigs of winter-green or ground-ivy will drive away red ants; and wormwood will serve the same purpose for black ants.

Ants In Greenhouses— To Destroy.

Place some arsenic, mixed with sugar and water, in a saucer, which cover with a slate, leaving room for the insects to pass between the slate and the saucer. A stone ought to be set on the slate to prevent any other creature but the ants from getting access to the poison. Lime water, poured into the nests, will also destroy.

Apple Orchard.

BY R. DE GARMO.

Before we proceed to cultivate it will be necessary to select the location and plant the orchard.

Location.—As a general proposition select a tract of rolling ground with good deep soil, such as would raise a good crop of corn, and if for a home orchard, near the dwelling-house; although many of the best bearing orchards are planted on low or bottom land, but not many farms have such land in a suitable location for a home orchard.

Preparation of Ground.—The ground should be put into a good state of culture by deep plowing, the soil well pulverized and free from weeds and trash. Then take a team and large plow and plow a deep furrow on the straight side, a suitable distance from the edge of the plat, across the land to be planted. Then set stakes thirty

feet distant on a parallel line, and make the next furrow, and so on until the ground is all marked off in one direction; then cross the first furrow with similar furrows at right angles to the former every thirty feet, and the ground is ready for planting.

The Trees.—To be successful you must have good stock. If possible, go to a reliable home nursery and get thrifty two-year-old trees with low heads, grafted with scions cut from the best bearing trees and not from nursery trimmings. See that the roots are not allowed to dry before planting.

Apple Trees—To Plant.

The trees, in all cases, should be set without bending or diverting them from their natural direction, and the more room is all the better. The subsoil or dead earth should be removed from the bottom at least a foot deep in shallow soils, and its place supplied with good surface soil or compost. A compost of well rotted manure and meadow mud is admirable for this purpose, and for filling the hole when the tree is set. Care should be taken not to set too deep. The roots need the influence of the atmosphere, of light and heat, as well as of manures and rains, and languish if buried below this influence. It is a safe rule to set no deeper than the trees stood in the nursery, and this can easily be determined by their appearance at the base. Every fiber should be extended in its proper direction, level and not dipping, and carefully surrounded with compost. No vacant places or cavities should be left in covering the roots, nor injury done to them by the hand or spade. A tree should not be taken from a soil much richer than that to which it is transferred.

Planting.—Take your load of trees to the ground, and by simply opening up the loose soil at the furrow crossings you have a suitable place to plant your

trees with little hard work. Shorten in all the straggling roots, cutting with an under slope, and set the tree from one to two inches deeper than it stood in the nursery, packing the fine dirt firmly around and over the tree roots, till absolutely on a level with the ground around it. I would lean the tree a little to the southwest, on account of the prevailing winds. Now take your team and plow two or more furrows around each row, throwing the dirt on the roots of the trees, level off the ground, and this is their first cultivation. It puts the roots so far under ground that they will not dry out, or the tree be blown about. Do not fail to tread or tramp the ground well over the roots of each and every tree.

Cultivation.—The young orchard needs good, clean cultivation, stirring the ground around the trees three or four times, at least during the first part of the season—and if dry, cultivate it oftener, but not later than the middle of July or first of August.

Pruning.—Here is an important subject, on which the writer will probably differ somewhat from many orchardists. Take the tree in hand as soon as, or even before, it is planted, and shorten all straggling branches, even the main center shoot, which the nursery men tell us not to touch; if it reaches up much above the other branches, cut it off. Try to leave the most top on the south and west sides of the tree, as a protection from the sun, and cut smoothly from the north side, and keep out all watersprouts while the tree is young and small; in other words, trim for a round-headed tree.

What kinds to Plant.—Now we come to a very important question; for if we expect to have a variety of choice fruit for family use or for market, it will need much care in the selection of summer, fall and winter varieties, to have a constant supply of each in season. So

much depends upon the location and kind of soil, that we will leave the planter to choose his old and favorite kinds to fill in with.

Apples—To Dry.

The most general method adopted in drying apples is, after they are pared to cut them in slices, and spread them on cloths, tables or boards, and dry them out-doors. In clear and dry weather this is, perhaps, the most expeditious and best way; but in cloudy and stormy weather this way is attended with much inconvenience, and sometimes loss, in consequence of the apples rotting before they dry. To some extent they may be dried in this way in the house, though this is attended with much inconvenience. The best method that I have ever used to dry apples is to use frames. These combine the most advantages with the least inconvenience of any way, and can be used with equal advantage either in drying in the house or out in the sun. In pleasant weather the frames can be set out-doors against the side of the building, or any other support, and nights, or cloudy and stormy days, they can be brought into the house, and set against the side of the room near the stove or fire-place. Frames are made in the following manner: Two strips of board, 7 feet long, 2 or 2½ inches wide—two strips 3 feet long, 1½ inches wide the whole ¾ of an inch thick—nail the short strips across the ends of the long ones, and it makes a frame 7 by 3 feet, which is a convenient size for all purposes. On one of the long strips nails are driven 3 inches apart, extending from the top to the bottom. After the apples are pared, they are quartered and cored, and with a needle and twine, or stout thread strung into lengths long enough to reach twice across the frame; the ends of the twine are then tied together, and the strings hung on the nails across the frame. The apples

will soon dry so that the strings can be doubled on the nails, and fresh ones put on or the whole of them removed, and others put in their place. As fast as the apples become sufficiently dry they can be taken from the strings, and the same strings used to dry more on. If large apples are used to dry, they can be cut in smaller pieces. Pears and quinces, and other fruits that can be strung, may be dried in this way.

Apples—To Keep.

By selecting the best of fruit, and carefully enveloping each specimen separately in paper so that the air cannot pass through, the time of keeping in a sound and eatable condition can be greatly prolonged. After covering each apple with paper, select a light wooden box and cover it on the inside, or outside, with paper either before or after putting in the fruit, as the case may be. Those persons who are desirous of preserving a small quantity of apples will be amply repaid for their trouble by trying the above experiment. The fruit should not be disturbed after packing until the box is opened at the time the fruit is to be eaten.

Another.—A layer of dry sawdust was sprinkled at the bottom of the box, and then a layer of apples placed in it so that they did not touch each other. Upon these was placed a little layer of sawdust, and so on until the box was filled. The boxes, after being packed in this way, were placed on the wall in the cellar, up from the ground, where they kept, perfectly retaining their freshness and flavor, until brought out.

Another.—Apples for keeping should be laid out on a dry floor for three weeks. They then may be packed away in layers, with dry straw between them. They should be kept in a cool place, but should be sufficiently covered with straw to protect them from frost. They should be plucked on a

dry day. They also keep if packed in dry sand.

Another.—An excellent method for preserving apples through the winter is to put them in barrels or boxes, surrounding each apple with some dry mold or gypsum (plaster of Paris)—not the calcined used for casts, models, etc.—and kept in a dry cool outhouse.

Apple-Tree Borer.

To remove and destroy this pest of the orchard, in the spring, just before vegetation starts, level the ground, and pack it firmly around the root of the tree, in a circle of about two feet in diameter, according to the size of the tree. Take unleached ashes and air-slaked lime in equal parts, well mixed, and apply to the circle thus made, covering the ground all over two or three inches in depth. Then take strong soap suds, or, what is better, a solution of half a pound of sal soda to one gallon of water and wash the entire trunk and the base of the limbs thoroughly. Repeat this operation in the fall of the year, just before freezing weather, covering the ground with the mixture of ashes and lime, and washing the trunk and base of the branches with the solution of sal soda. If the borers have already made an entrance into the tree the only way to get rid of them is to dig them out by the use of a fine, annealed wire, avoiding as much as possible the cutting away of the bark in the necessary preparation for entering the holes.

Apple Trees—To Keep Rabbits from Barking.

Take any quantity of sweet milk you may desire, and add to it soot from the stovepipe or chimney, where wood has been used, until it is a thin paint. Take a warm, dry day to wash your trees, so it will get dry before a rain. One thorough washing will generally be found to be sufficient.

Another.—Thoroughly rub the trunks with the dead body of a rabbit.

Apples—To Color While Growing.

A bright red color can be imparted to growing apples by the application of the oxide of iron to the soil about the roots of the trees. Anvil dust and cinders, etc., will answer the purpose.

Apple Trees, (Old,)—To Rejuvenate

Take fresh-made lime from the kiln, slake it well with water, and well dress the tree with a brush, and the insects and moss will be completely destroyed, the outer rind will fall off, and a new, smooth, clear, healthy one will be formed, and the tree will assume a most healthy appearance and produce the finest fruit.

Apple Trees—Lice On.

The apple-bark louse is most common on unhealthful trees—trees that are grown in grass are most likely to be affected with them. It is hurtful to trees and should be exterminated. A good way to do this is first to feed the trees liberally with manure and ashes. Ashes alone, if you have no manure to spare, placed about the roots—not in contact with the body—will help. Dig up the grass about the tree. In the spring take a hoe and give the bark a good scraping; then wash the tree with strong soap suds. This should be done early and the washing repeated once or twice before the trees blossom.

Apple-Tree Suckers.

Many otherwise good orchards are allowed to become defaced, as well as seriously injured, by allowing a profusion of suckers to grow at the base of the trunks. Attempts are sometimes made to get rid of them by cutting them off down to the surface of the ground, and leaving considerable portions below in the form of short stumps. These sprout again, and they soon become quite as bad as ever. A better

way is to wait until they are in leaf, at which time they are loosened more readily, and taking each separately in the hands, place a thick boot upon it near the tree, and they are quickly separated. If done at that time they will not be likely to sprout again.

Apple Orchard—Crops In.

Crop to within two feet of the trees the first year, a yard the second, four feet the third, and so on until finally relinquished; which, of course, would be about the eighth year, provided the trees were planted at thirty or forty feet apart, with early bearing sorts between. By this time, if the kinds have been well chosen, the temporary trees will be in full bearing, and will forthwith defray every necessary expense.

Aquarium—How to Make and Fill.

First, as to the tank or globe—the receptacle for your water and its living plants and animals. Whether you determine on a marine or a fresh water aquarium, the tank is the same. It may be either square or round. If square or rectangular, it should be perfectly water tight, with a plain piece of glass to place loosely over the top at night and when the room is being dusted. A propagating glass turned upside down forms a good, strong round tank, which may be purchased cheaply of the dealers in horticultural glass; lately, indeed, they have been made of graceful shape in perfectly white glass, purposely for use as aquaria. The advantage of square over round tanks, is that they do not enlarge or distort the objects seen within them.

Having bought your tank, your next task is to fill and stock it. It must be prepared for the plants and animals by placing at the bottom a layer of stones and gravel: fresh water gravel for fresh water, stones and sand for salt water. These form a basis or foundation for

the roots of the plants. It is well also to have a little rock work rising from the bottom, just above the surface of the water. Then fill it with water. For a fresh water aquarium, ordinary water will do, but for a marine aquarium you must have the proper sea water. Do not try the artificial sea water advertised, but get a sufficient quantity from the sea itself, taken at some distance from the shore.

To Make Sea Water—But if real sea water is very difficult to procure, the following mixture will form a tolerably good substitute. It so nearly assimilates to the actual composition of salt water that it will support life in the marine aquarium: Common salt (chloride of sodium) $3\frac{1}{2}$ ounces; Epsom salts (sulphate of magnesia) $\frac{1}{4}$ ounce; chloride of magnesium, 200 grains troy; chloride of potassium 40 grains troy. These materials, properly dissolved, are to be added to four quarts of common soft water, the same proportions being observed if you enlarge the quantity.

Aquarium—Home Made.

Cut a narrow groove in a board the size you wish, set four pieces of glass on edge in the groove; put a piece of zinc in bottom; on the board make a light frame, the size of the top, with grooves; pass a small rod through the frame down the inside of the corners, through the bottom, and screw up tight; put cement in all the corners, and you will have an aquarium at very trifling cost. To make the cement, take one part, by measure, of litharge; one part plaster of Paris; one part fine beach sand; one-third part fine powdered rosin; mix all together. This may be kept for years, while dry, in a well-corked bottle; when used, make into putty with boiled linseed oil; a little patent dryer may be used; it will stand water at once, either salt or fresh.

Aquarium (Fresh Water)

—To Stock.

Presuming that you begin with a fresh water aquarium, you will find the best weed to grow in the water is the *anacharis alsinastrium*, the weeds which often choke the canals and inland streams. This pretty moss-like plant may be easily procured from almost any canal at any time of the year. Another weed which does admirably in the aquarium is the *ranunculus aquatilis* (the water crowfoot), which may be taken from any pool during the spring months, and placed in the tank when it will send down roots and grow abundantly. Be careful to remove all broken or decaying shoots, and keep the weeds from multiplying too fast, or the balance between animal and vegetable life will be destroyed.

In stocking a fresh water aquarium great choice is left for the young naturalist. He may have small carp, gold fish, minnow, or almost any kind of river fish, with water newts, or efts, or even a good sized frog, which is by no means an ugly or uninteresting animal. The frogs and newts will crawl occasionally to the top of the rock and sun themselves. A diving spider is also a good addition; but you must by no means neglect a good supply of water snails and fresh water shrimps, which will be found very useful in eating away the *conferva*, or green slime-weed that collects on the glass. Sticklebacks are very amusing little fish, but they must be kept by themselves, for they are quarrelsome fellows, and have an ugly knack of poking their sharp spikes into and mortally wounding the other inhabitants of the tank. Some water beetles are also harmless, but others prove a great nuisance. You must avoid placing pike in your tank, though by themselves they are amusing.

Aquarium (Marine)—To Stock.

For the marine, or sea water aquarium, the sea anemone (actinia) and various kinds of crabs may be had in great variety of the dealers; and if you are fond of sea-side wandering you may procure them for yourselves among the rocks and in the little pools on the shore when the tide is out. Sea snails, shrimps, star-fish, etc., may be introduced at pleasure; while for the plants, any of the small sea weeds will do. When gathered, a little piece of the rock to which they grow should be chipped off, and the plants placed in the tank without being detached or bruised. The plants and rockwork should be arranged picturesquely. Remove any sick or dying animals, so as to prevent the water from becoming foul.

Aquarium—How to Manage When Complete.

The aquarium should be placed on a stand or table in a good light; and if the sun shine directly on either side, that part should be protected by a green baize curtain which may be removed when the sunshine departs. Once fixed, the tank should not be disturbed. A window with northwestern or western aspect is a capital situation. Be careful not to crowd your tank, and when you find the water level getting too low, raise it by addition of more water; but do not meddle with the arrangement of the tank too often or you will alarm your live stock. In the management of the aquarium, as in other pet fancies, cleanliness is the grand secret of success.

Arithmorems.

This class of riddle is of recent introduction. The Arithmorem is made by substituting figures in a part of the word indicated for Roman numerals. The nature of the riddle—from the Greek arithmos, number, and the Latin

remanere, back again—will be easily seen from the following example, which also forms a double acrostic:—

H 51 and a tub—a fine large fish.

A twice 50 and gore—a sprightly movement in music.

R 5 and be—a part of speech.

U 551 and as an a—a Spanish province.

To 201 and ran—a stupefying drug.

R 102 and nt—an acid.

OU 250 and paa—a Mexican town.

The answer is Havanna Tobacco. Halibut, Allegro, Verb, Andalusia, Narcotic, Nitric, Acapulco.

Arm

Consists of an upper arm and a forearm, and affords best illustration of some natural principles in mechanics. The nearness of the muscles to the fulcrum causes loss of power, but gain of speed. Left arm is often stronger than right. In report of the Anthropometric Laboratory to the British Association in 1893, left arm of males was the stronger in about 33 per cent., and of females in about 24 per cent. Both arms are equally strong in 16 per cent. of males, and 29 per cent. of females. Right arm is generally the longer, as is the left leg also. About 46 per cent. have right arm and left leg the longer, and 6 per cent. have left arm and right leg the longer.

Ash Tree.

Is a beautiful tree, but so leafy that it is very harmful to grass or other crops in its neighborhood. It grows to 100–150 feet, and the wood is so tough and hard that it is much used for wheels. It also makes good fuel. In Scandinavian mythology the first man and woman were the Ash and the Elm, and the court of the gods was held under an Ash. In Highlands of Scotland it was thought lucky to give infants Ash-sap as their first food.

Ash Wednesday

Is the first day of Lent, on which ashes were sprinkled on the head as sign of penitence. Instituted by Pope Gregory the Great about 600 A. D.

Atmosphere—To Test the Purity of.

A simple method of ascertaining the presence of impurity (carbonic acid) in the atmosphere is to nearly fill a glass tumbler with lime-water, and to place it in any convenient position, as on the mantel-piece of a room. The rapidity with which a pellicle forms on its surface, or the water becomes cloudy corresponds to the amount of the carbonic acid present in the atmosphere that surrounds it.

Another.—A little moist carbonate of lead put on a plate or saucer, and exposed in the same way, will turn black, should any sulphureted hydrogen be contained in the air. This is a very delicate test for that destructive gas.

Autumn.

Begins scientifically on September 22nd, the autumnal equinox, and ends on December 21st; but in popular opinion it lasts from the middle of August to the middle of November.

Awnings—Mildew Proof.

As mildew is a parasitic plant, a fungus living at the expense of other organic matter, its prevention requires something destructive to vegetable life and a kind of varnish to close the pores of the texture of the linen awning, to protect it against the chemical influences of the atmosphere and the penetration of the fine root filaments of the fungus, which has great vitality. Different varnishes will answer the purpose; we should prefer first to moisten the linen with a solution of arseniate of potash, which has the special property of preventing organic changes. After drying, put on a benzine varnish; perhaps one made of India rubber and benzole would be best. Carbolic acid is said to have the same effect, when the cloth is steeped in it; but it may discolor the canvas, and, moreover, it may be washed out by repeated rains.

Axle-Grease.

Water, 1 gal.; soda, $\frac{1}{2}$ lb.; palm oil, 10 lbs.; mix by heat, and stir till nearly cold.

Another.—Water, rape oil, of each 1 gal.; soda, $\frac{1}{2}$ lb.; palm oil, $\frac{1}{4}$ lb.

Another.—Water, 1 gal.; tallow, 3 lbs.; palm oil, 6 lbs.; soda, $\frac{1}{2}$ lb. Heat to 210 degrees Fah., and stir until cool.

Another.—Tallow, 8 lbs.; palm oil, 10 lbs.; plumbago, 1 lb.; make a good lubricator for wagon axles.

B**Balloons (Toy)—Gas For.**

Procure a glass jar with a tight fitting cover with a hole in the center. Fill two-thirds full of strips of good new zinc; put in enough water to cover this; then pour in enough sulphuric acid to make the water boil. Fasten the balloon tightly around the top of the jar so the gas cannot escape while generating.

Balloon Varnish.

Melt India rubber in small pieces, with its weight of boiled linseed oil, and thin it with oil of turpentine.

Balm of Beauty.

Pure soft water, 1 quart; pulverized castile soap, 4 oz.; emulsion of bitter almonds, 6 oz.; rose and orange flower water, of each 8 oz.; tincture of benzoin, 2 dr.; borax, 1 dr.; to use, apply on a cotton or linen cloth to the face, etc.

Balm of Gilead—Imitation.

Benzoin, 1 lb.; yellow resin, 14 lbs.; Melt, and add oil of lemon, 4 oz.; oil of rosemary, 4 oz.; oil of caraway, 4 oz.; spirit to reduce it to a proper consistence.

Balm of a Thousand Flowers.

Deodorized alcohol, 1 pint; nice, white bar-soap, 4 oz.; shave the soap when put in; stand in a warm place until dissolved; then add oil of citronella, 1 dr.; oils of neroli and rosemary, of each $\frac{1}{2}$ a dr.

Bananas.

Bananas are both very nutritious and extremely prolific. It is said that one pound of bananas contains more nutriment than three pounds of meat, and that four thousand pounds of bananas will grow on less space than thirty-five pounds of wheat. They can be put to all sorts of uses. For instance, in Uganda they are converted into beer, brandy, champagne, vinegar, and jam; the leaves are used to build and roof houses, and bits of them serve as plates, spoons, and bottles. A single leaf may act as an umbrella, a series of them as a lady's skirt or a baby's cradle. Bananas are really herbs, but grow to the height and have the appearance of (palm) trees. There is really no difference between bananas and plantains; but the large-fruited kinds, which are very farinaceous, are generally called plantains, and the small-fruited kinds, which contain a high percentage of saccharine, are generally called bananas.

Bandoline—A Compound for Stiffening the Hair.

Quince seed, $\frac{3}{4}$ of a teaspoonful; linseed, 1 tablespoonful, and a pinch of white mustard seed. Boil in a pint of soft water to half a pint, and scent with oil of almonds.

Another.—Isinglass, 1 oz.; water, 1 pint; proof spirit, 2 fluid oz. Dissolve the isinglass in the water by heat, add the spirit, and scent with almond oil.

Another.—Tragacanth, 1 oz.; rose water, 1 pint. Bruise the gum, digest for three days, and strain.

Any of these may be colored with cochineal, if required.

Barks—To Preserve.

Barks may be conveniently preserved by placing them in coarse brown paper bags, and hanging them up, in a dry and airy situation, until all extraneous moisture has evaporated.

Barometers.

These instruments are most useful for indicating approaching changes in the weather, according to variations in the pressure of the atmosphere. There are several kinds; the mercurial is generally considered the best.

Barometer—Mercurial.

This consists of a narrow glass tube upwards of thirty inches in length, open at one end and closed at the other. This tube contains quicksilver which rises and falls as the pressure of air on the open surface increases or decreases; the variations being shown by an index hand on a dial plate engraved with the words "Fair, Change, Rain," etc. Fair weather is usually indicated by a rise in the mercury, and bad weather by a fall.

These barometers should be hung securely on the wall where they are neither exposed to draughts nor varying heat; a sheltered nook in a passage is the best position.

Barometer—Aneroid.

This, if well made, is an excellent weather glass, and has the advantage of being extremely portable, as it is made in a compact circular form in sizes varying from one inch in diameter. Excellent instruments are made about the size of a watch admirably adapted for tourists, and enabling them to measure the heights of mountains, buildings, etc.

In these instruments the variations of the atmosphere cause the expansion and contraction of two discs of corrugated metal, soldered together, forming a vacuum chamber, the action of

these discs being indicated on the dial plates by a needle very similar to the hand of a watch.

Barometer—Chemical.

Take a long narrow bottle, such as an old-fashioned Eau-de-Cologne bottle, and put into it two and a half drachms of camphor and eleven drachms of spirit of wine; when the camphor is dissolved, which it will readily do by slight agitation, add the following mixture:—Take water, nine drachms; nitrate of potash (saltpetre), thirty-eight grains; and muriate of ammonia (sal ammoniac), thirty-eight grains. Dissolve these salts in the water prior to mixing with the camphorated spirits.

Barometer—Phial.

Cut off with a file the rim and part of the neck of an ordinary glass phial. Then fill it three parts full of water, pure or colored as may be desired, place a finger over the mouth of the phial and turn it upside down; hang it up by means of wire or string, and take your finger away. In fair weather the water remains level with the neck of the phial; but in damp weather a drop forms at the mouth and enlarges until it falls, to be followed by others.

Barometer—Leech.

Take a two-ounce phial three-parts filled with pure water, and place in it a healthy leech, cover the mouth of the bottle with a piece of muslin, and it will most accurately prognosticate the weather. If the weather is to be fine, the leech lies motionless at the bottom of the glass, and coiled together in a spiral form; if rain may be expected, it will creep up to the top of its lodgings, and remain there till the weather is settled; if we are to have wind, it will move through its habitation with amazing swiftness, and seldom goes to rest till it begins to blow hard; if a re-

markable storm of thunder and rain is to succeed, it will lodge for some days before almost continually out of the water, and discover great uneasiness in violent throes and convulsive-like motions; in frost as in clear summer-like weather it lies constantly at the bottom; and in snow as in rainy weather it pitches its dwelling in the very mouth of the phial. The water should be changed weekly in summer and fortnightly in winter.

Barrels—To Sweeten when Foul.

Set fire to one pound or more of broken charcoal, put it into the cask, and immediately fill up the cask with boiling water. After this roll the cask once or twice a day for a week; then pour out the charcoal and water, wash out the cask with clean cold water, and expose it to the external air for some days.

Another.—A pint of the permanganate turned into the most musty, filthy cider or beer cask and rinsed about a few moments will entirely decompose all fungoid growths and fermenting matter, and render the cask as sweet as those that are new. The deodorizing, disinfecting power of the permanganate holding, as it does, five equivalents of oxygen, is wonderful; it will even deodorize carbolic acid.

Base Ball—To Make.

A good base ball may be made by cutting an old boot or an old rubber shoe into strips and wrapping them tightly around each other till it is about the size of a walnut. Then wrap with yarn or any kind of string very tightly, until it is the size you want it; then sew the loose end to the ball. Now lay the ball down on a piece of leather and gather up the sides and press them close to the ball and with a sharp knife trim off the corners (be sure to have them fit nicely). Now sew up all the

sides except one; then slip in the ball ball, and sew up with a double thread. Now put some oil on the seams and hammer them smooth; for if you are not careful in catching a ball with rough seams, it will sometimes take the skin from the ends of the fingers.

Baskets—To Crystallize.

Take a small basket, about the size of your hand, of iron wire or split willow; take some lamp cotton, untwist it, and wind it around every portion of the basket; then mix alum in the proportion of one pound to a quart of water and boil till the alum is dissolved; pour the solution into a deep pan, and in the liquor suspend the basket without allowing any part to touch the pan, or to be exposed above the surface; let the whole remain properly at rest for twenty-four hours, when, if you take out the basket, the alum will be found prettily crystallized over all parts of the cottoned frame. After this first experiment, it will be easy to extend the crystallizing process to larger objects, and to adorn flowers with alum crystals of various colors.

Battery—Cheap Galvanic.

Procure about twenty copper pennies (if worn smooth so much the better), or get some sheet copper, cut circular and of a large diameter, and the same number of similar pieces of zinc. The latter may be formed by the constructor himself; being very easily melted, it may be cast in a mold like lead, or it may be procured in a sheet, and cut similar to the copper. Then provide the same number of pieces of cloth, which must be soaked in a solution of common salt and water; or what is better, a liquid composed of one quart of sulphuric acid, two of nitric acid and sixty of water. After this is done, place one of the pieces of zinc in a tea saucer, and on it put one of the pennies, or pieces of sheet-copper; on this

place a piece of cloth, and so continue making a pile—zinc, copper, cloth—until they are all piled on one another; taking care to make the same arrangement throughout. The piece on the top, which will be a penny, should have a copper wire, which, for some experiments, should be tipped with platinum wire soldered to it, and the lower piece which will be zinc, should be treated in the same manner. From the ends of these wires a stream of the galvanic fluid will constantly issue, until all the acid is absorbed from the pieces of cloth, and although the apparatus is on a very small scale, a variety of exceedingly interesting experiments may be performed with it.

Another.—Take a cylindrical vessel, and put another of porous porcelain inside of it; fill the vessel with diluted sulphuric acid, and the space between the two with sulphate of copper (if you require to plate the article with copper) if not, a solution of the salt of gold, silver, etc., according to that which you wish it to be; put a slip of zinc in the sulphuric acid, and attach a copper wire to it, and the other end to the medal or article you wish to plate, and immerse that in the other solution. Your battery is now complete. If you want the copper to be very thick, you must put a few solid crystals of copper in the solution; where you do not want it to come in contact, you must touch it with a little grease; if you want to take the copper off the article you must do it over with a slight varnish.

Another.—A cheap galvanic battery has been described by Dr. Golding Bird, which, it is stated, can decompose water and ignite charcoal. The mode of construction is to break the stem of six tobacco pipes close to the bowls, and close the apertures at the bottom of each bowl with sealing wax; get six small toy tumblers, about half an inch in height; put in each a cylinder of

amalgamated zinc, and place in each pipe bowl a thin slip of platinum foil, half an inch wide, and connect it with the zinc of the next cell with platinum wire; fill the pipe bowls with the nitric acid and the tumblers with dilute sulphuric acid, and the battery is complete. In case the platinum cannot be obtained, copper may be substituted. This battery is in imitation of the famous battery made by Faraday out of a common thimble.

Bay Rum.

This is a spirit distilled from the leaves of *Myrciocris*, and perhaps, also some other species of the same genus. The trees grow in the West India Islands, and the genuine bay rum is imported from there into this country. It is made elsewhere, sometimes, by taking the tincture of bay leaves, 5 oz.; oil of bay, 1 dr.; bicarbonate of ammonia, 1 oz.; borax, 1 oz.; rosewater, 2 pints. Mix and filter carefully.

Bears' Grease (Artificial.)

Bears' grease is imitated by a mixture of prepared veal suet and beef marrow. It may be scented at pleasure.

Beaver Skins—To Dress.

You must rip the skin in the same way as you would a sheep. Stretch it in all ways as much as possible; then it is to be dressed with equal parts of rock salt and alum dissolved in water and made about as thick as cream by stirring in coarse flour. This should be spread on nearly half an inch thick to be scraped off when dry and repeated if one time is not enough. This same process of dressing applies likewise to otter skins.

Beds, Feather—Care of.

The care of beds is not understood, even by some good housewives; when a bed is freshly made it often smells strong. Constant airing will, if the

feathers are good, and only new, remove the scent. A bed in constant use should be invariably beaten and shaken up daily, to enable the feathers to renew their elasticity. It should lie, after it is shaken up, for two or three hours in a well-ventilated room. If the bed is in a room which cannot be spared so long, it should be put out to air two full days of the week. In airing beds the sun should not shine directly upon them. It is air, not heat, which they need. We have seen beds lying on a roof where the direct and reflected rays of the sun had full power, and the feathers, without doubt, were stewing, and the oil in the quill becoming rancid, so that the bed smells worse after airing than before. Always air beds in the shade on cool and windy days. Feather beds should be opened every three or four years, the ticks washed, the seams soaped and waxed, and the feathers renovated.

Feathers were never intended for human beings to sleep on. They are always, without exception, debilitating. Straw, corn husks, compressed sponge, or curled hair, should always be used in preference.

Bed-Bugs—To Exterminate.

Perfect cleanliness. No bed-bugs or other vermin will infest a house, the mistress of which is of orderly and cleanly habits and fine tastes.

Another.—Two ounces of red arsenic, a quarter of a pound of white soap, one-half an ounce of camphor dissolved in a teaspoonful of spirits rectified, made into a paste of the consistency of cream. Place this mixture in the openings and cracks of the bedstead.

Another.—Where bed-bugs are present the best, quickest and handiest exterminator is Persian insect powder. Persian insect powder should be blown with a small bellows made for that purpose into every crack and crevice. It is effectual, clean and cheap.

Beds—To Keep Aired.

When not being used they should be put under other beds which are in use; or they may now and then be placed in front of a good fire and turned over occasionally.

Bedrooms—Hints on Scouring.

They should not be scoured in the winter time, as colds and sickness may be produced thereby. Dry scouring upon the French plan, which consists of scrubbing the floors with dry brushes may be resorted to, and will be found more effective than can at first be imagined. If a bedroom is wet scoured, a dry day should be chosen, the windows should be opened, the linen removed, and a fire should be lit when the operation is finished.

Bedrooms—Ventilating.

A sheet of finely perforated zinc, substituted for a pane of glass in one of the upper squares of a chamber window, is the cheapest and best form of ventilator; there should not be a bedroom without it.

Bed Chamber—The Ideal.

"The importance of the sleeping and bathing arrangements of a house is not half appreciated," writes Maria Parloa, in the November *Ladies' Home Journal*, giving some suggestions as to furnishing the house.

"Every bedroom should be provided with the essentials for healthful sleep and the daily sponge bath. As nearly as possible, the room should be kept free from anything that would tend to contaminate the air. It should be as large as one can afford, and the windows so arranged that they may be opened at the top and bottom. If possible the floor should be bare and the rugs so small that they can be taken outdoors with ease for cleaning and airing. Everything about the room should be washable. The bed should be light and fitted with strong castors,

so that it may be readily moved; the springs ought to be firm and strong, and the mattress of a kind that will not allow the heaviest part of the body to sink, and so cause the sleeper to lie in a cramped position. My own preference is for a cheap, hard mattress next the springs and a light one of hair on this, but any kind of a firm mattress is better than one that is too soft. Above all, do not overfurnish the bedroom.

Bed—Hygiene of The.

The bed is the place where we spend one-third of our lives. A person, sixty years of age, has spent about twenty years of it in bed. Bad habits and positions are formed during sleep. Some assume an attitude that cramps the chest and prevents easy breathing.

The shoulders should not be drawn forward nor the arms folded over the chest, nor thrown above the head. A narrow bed is the best for growing people. If as narrow as the Duke of Wellington's is said to have been, so much the better.

Some get the habit of pulling up their feet and legs and curling up their body the minute they get into bed. This is very bad; they should lie straight in bed if they wish to be straight and of a proper figure when out of it.

Everybody should sleep with his mouth shut—shut your mouth and breathe through your nose in bed as well as out of it. If this is found difficult, overcome the difficulty as soon as possible. It will prevent snoring and contribute to rest and vigor.

Some people say they can only sleep on one side. If so there is something wrong. It may be from habit which has caused one side to become unevenly developed with the other. A healthy person can sleep and should sleep on one side or the other.

The way some people twist and contort their faces during sleep makes

them the most unseemly looking creatures imaginable as they grow old; the wrinkles they get in this way are always with them. No matter what the cause is, do break off such a bad habit.

On going to bed lie straight, think of something pleasant, and get up a smile on your face. Leave behind you all care, worry, and toil, stretch out straight with a low pillow under your head, shut your eyes and think of heaven.

Beeswax—To Whiten.

In March or April melt yellow wax without boiling; then having several pewter dishes ready, dip the outside bottom of each dish in fair water; then dip them into the wax, and take up a very thin plate of wax—the thinner the better; take them off, and expose them upon the grass to the sun, air, and dews, until they be milk-white, turning them often.

Beeswax—To Bleach (Italian Method).

The yellow wax is first melted in a kettle, and then is dipped out into a long tin vessel that will hold two or three gallons, and which has a row of small holes, about the diameter of a knitting needle, in the bottom. This vessel is fixed over a cylinder of wood two feet in length and fifteen inches in diameter, which is made to revolve like a grindstone, in one end of a trough of water, two and one-half feet in width, ten to fifteen feet in length, and one foot in depth. As the melted wax falls in small streams on this wet revolving cylinder, it flattens out into a thin ribbon, and floats off toward the other end of the trough of water. It is then dipped out with a skimmer (that may be made of osier twigs), spread on a table with a top made of small willow rods, covered with a clean white cloth, and then exposed in this way to the sun until bleached.

Beetles—To Kill.

Place a few lumps of unslaked lime where they frequent.

Another.—Set a dish or trap containing a little beer or syrup at the bottom, and place a few sticks slanting against its sides, so as to form a sort of gangway for the beetles to climb up it, when they will go headlong into the bait set for them.

Another.—Mix equal weights of red lead, sugar, and flour, and place it nightly near their haunts. This mixture, made into sheets, forms the beetle wafers sold at the oil shops.

Beginning—Make A.

Remember in all things that if you do not begin, you will never come to an end. The first weed pulled up in the garden, the first seed put into the ground, the first quarter put into the savings' bank, and the first mile traveled on a journey, are all very important things; they made a beginning, and thereby a promise, a pledge, an assurance that you are in earnest with what you have undertaken. How many a poor, idle, erring, hesitating outcast is now ereeping and crawling his way through the world, who might have held up his head and prospered, if instead of putting off his resolutions of amendment and industry, he had only made a beginning.

Bell.

The best substance from which bells are formed has been proved to be bronze—a mixture of copper and tin. The proportions of the metals often differ, but for centuries the ratio of 2 to 1 was accepted. Later the tendency has been to increase the proportion of copper which is stated to be in the ratio of 13 to 4 of the tin. Silver is always injurious to the tone of any bell. The pitch of a bell is regulated by the thickness of the striking place in proportion to the diameter, the ratio being

about 1 to 12 in a bell of 10 cwt. From the earliest ages cymbals and handbells were used in religious ceremonies. In Egypt the festivals of Isis were celebrated with the sound of the sistra. Aaron and other High priests of the Jews wore golden bells on their vestments.

Bell Metal.

Melt together under powdered charcoal, 100 parts of pure copper, with 20 parts of tin, and unite the two metals by frequently stirring the mass. Product very fine.

Another.—Copper, 3 parts; tin, 1 part; as above. Some of the finest church bells in the world have this composition.

Another.—Copper, 2 parts; tin, 1 part; as above.

Another.—Copper, 72 parts; tin, 26½ parts; iron, 1½ parts. The bells of small clocks or pendules are made of this alloy in Paris.

It is absolutely necessary in this process to keep the metals from contact with the air, for which purpose the powdered charcoal is employed. The union of the two metals in this alloy is so complete, that its gravity is considerably greater than that of the mean of its constituents, thus evincing chemical union to have taken place.

The proportions of the first form are those of the Indian gong, so much celebrated for the richness of its tone. In very small bells, and in those of repeating watches, a little zinc is generally added, which makes them give out their tones the sharper. A less proportion of tin is now generally used for church bells than for house or clock bells, the tones being thought to be rendered thereby more suitable to their respective purposes. The substitution of zinc for the iron in the last formula, would (it is said) improve the tone.

To give this alloy its highest degree of sonorousness, it must be subjected

to sudden refrigeration. M. D'Arcet recommends the pieces to be ignited after they are cast, and then to be suddenly plunged into cold water. They are next to undergo a well-regulated pressure by skillful hammering, until they have assumed their intended form; then to be heated, and allowed to cool slowly in the air. In a general way, however, bells are formed by simple casting. The addition of lead, and other such metals, to this alloy, greatly lessens its sonorousness. For common purpose the third form is generally used.

Belts and Belting.

Flexible belts for the transmission of motion in machinery are made of leather, india-rubber, woven hair, cotton, gutta-percha, canvas, and other materials. Sometimes two or more of these are combined with wire. The valuable qualities in a belt are—proper grip of the surface of the pulley, power to resist strain, impossibility of stretching, and durability. Leather belts are most lasting when tanned with oak, but American hemlock spruce is used. One of the largest leather belts yet made was for a paper mill in Delaware. It was 186 feet long, 5 feet wide, and weighed 2,212 pounds. When carefully made, these belts will last thirty years in daily use. Leather chain belting is used for driving dynamos for electric lighting, and for other purposes. India-rubber belting is mostly employed in the States, but cotton belting is employed in both England and America. Some of it is water proof.

Belts—To Oil

A good way to oil belts is to pour the oil on to the outside of the belt as it runs, and let the pulleys work it in. It may be put on freely if the belt be running idle, but if at work it will take but a small quantity at a time without slipping. Keep the leather just oily enough to make it pliable.

Birch Bark—Picture Frames Of.

Beautiful picture frames can be made from birch bark by cutting the bark the desired size and leaving all natural growth on it. The frame should be stitched around the edges with some fancy stitch (as button hole stitch). It is best to use a heavy darning needle and a colored yarn.

Birds (Tame)—Disorders of.

All tame animals are much more subject to disease than wild ones: and birds so much the more, as they are often shut up in very small cages, where they can take no exercise. It is often supposed that birds in their natural free state, have no diseases; but people who will take the trouble to observe, will soon perceive the falsehood of this assertion. We have often found hedgesparrows full of pimples, particularly in the naked parts, the feet, and around the beak. Their diseases are often increased by the delicacies of all kinds which are given them, such as biscuits and sugar, which injure the stomach, and cause a slow decay.

Birds—The Pip in.

This is a catarrh, or cold, by which the nostrils are stopped up, and the membrane covering the tongue is hardened by inflammation. In large birds it is common to remove this skin, taking it off from the base to the tip; by this means this part can again perspire, the saliva necessary for digestion can flow, and the taste and appetite return. A mixture of fresh butter, pepper and garlic, generally cures this catarrh. It is a good thing, also, for the birds to drink the pectoral infusion of speedwell; and the nostrils may be opened by passing up a small feather. The ruffling of the head, the beak often open and yellow at its base, and the tongue dry, are the most decisive indications of this disease.

Birds—The Rheum In.

The symptoms of this disease are frequent sneezing and shaking of the head. Some drops of pectoral elixir in the infusion of speedwell, which the sick birds must be made to take, appears to me to be the most efficacious remedy. Give fowls about twenty drops of the elixir in a glass of the infusion.

When it is merely hoarseness, Dr. Handel, of Mayence, gave to his birds for several days, as their only drink, a very diluted decoction of dry figs, sweetened with a little sugar, and afterward purged them for two days following, with the juice of carrots.

Birds—Atrophy or Wasting In.

This is caused by giving unnatural food to the bird, which destroys the digestive power of its stomach. In this case it disgorges, ruffles its feathers and does not arrange them, and becomes thin very fast. The best thing is to make it swallow a common spider, which purges it, and put a rusty nail into its water, which strengthens the intestines, giving it at the same time its proper and natural food. Green food, such as lettuce, endive, chickweed, and particularly watercresses, is the safest remedy. A very great appetite is the sign of this disease. A siskin, that was dying of atrophy, had nothing but watercresses for three days following, and on the fourth he sung.

Birds—Consumption or Decline In.

This disorder may be known by the extreme thinness of the breast, the swelling of the lower part of the belly, the total loss of appetite, and similar symptoms. As a cure, Dr. Handel recommends the juice of the wild turnip to be given to drink instead of water.

Birds—Costiveness In.

This disease may be discovered from the frequent unsuccessful endeavors of the bird to relieve itself. Aperients will be of use. If a spider does not produce the desired effect, anoint the vent of the bird with the head of a pin steeped in linseed oil; this sort of clyster generally succeeds; but if the disease attacks a bird which eats meal worms, one of these, bruised in sweet oil and saffron is the most certain remedy, and the bird will swallow it without the least hesitation. Boiled bread and milk is generally of great use.

Birds—Diarrhoea In.

This is a disease to which birds that have been caught recently are very subject, before they are accustomed to their new food. Most of these die of it; they continually void a white calcareous matter, which sticks to the feathers round the vent, and being very acrid causes inflammation in that part and in the intestines. Sometimes chalybeate water and the oil clyster produce good effect; but it is better, if possible, to procure for the bird its most natural food. Some people pull out the feathers from the tail and vent, and then rub these parts with fresh butter, but this is a very painful and cruel operation. They also mix the yolk of an egg boiled very hard with their food, but we have never found this succeed very well. If there be any hope of curing this disease it is by attacking it at the beginning, before inflammation is violent; boiled bread and milk, a great deal of lettuce, or any other similar green refreshing food, in general completely cures them.

In a case of chronic diarrhoea, Dr. Handel prescribes chalybeate water mixed with a little milk for their drink, which, he says, is an easy and certain cure.

Birds—Bloody Flux In.

This is a disease with which some parrots are attacked. The best remedy is to make the birds drink a great deal of boiled milk, or even very fat broth; for their intestines, which are very much irritated, require something soothing to protect them from the acrid discharges, which, at the same time, must be corrected by healing food. Birds in this state generally do nothing but drink, therefore plenty of boiled milk should be given them, yet it nourishes them as well as acts medicinally, but should it appear to turn sour in the stomach, it must, at least for some time, be discontinued.

Birds (Singing)—Food for.

Knead together three pounds of split peas, ground or beaten, one and one-half pounds of fine crumbs of bread, the same quantity of coarse sugar, the raw yolks of six eggs, and six ounces of fresh butter. Put about one-third of the mixture at a time in a frying-pan over a gentle fire, stir it until a little browned, but not burned. When the other three parts are done, and all cold, add to the whole, six ounces of raw seed and six pounds of bruised hemp seed, separated from the husks. Mix together, and it will be found excellent food for thrushes, robins, larks, linnets, canaries, finches and most other singing birds, preserving them admirably in song and feather.

Birds (Cage)—Moulting Of.

Moulting or changing their feathers, is a natural operation with birds which cannot be prevented, but which must be assisted with care and attention. Cold is the greatest danger to which they are exposed; in passing through this state, therefore, all draughts of air should be carefully guarded against. When the cages are open ones, or have much wire-work,

they ought to be partly covered up with a cloth or paper, to keep the birds warm, and the cleaning of the cage need not take place more than once a week, though they must be carefully supplied with fresh food and water daily. A little saffron in their water, a little nourishing food, and the extra warmth occasioned by the covering to the cage, will soon restore the birds to a plumage more beautiful than they cast off. The covering of the cage should not be cast off all at once, but gradually; it should then be cleaned thoroughly, and the birds have their ordinary food. They should, while moulting, be put in the sun for an hour or two, if the weather is fine and warm.

Birds—Paste for.

Take a white loaf which is wellbaked and stale, put it into fresh water till it is quite soaked through; then squeeze out the water and pour boiled milk over the loaf, adding about two-thirds the quantity of barley meal, from which the bran has been carefully sifted, or, what is still better, wheatmeal. Another method, however, may be adopted. Grate a carrot very nicely, soak a small white loaf in fresh water, press the water out of it, put it along with the carrot into an earthen pan, add handfuls of barley or wheaten meal, and mix the whole together with a pestle. These pastes ought to be made fresh every morning, for they quickly become sour, and are consequently injurious to the birds.

Birds—German Paste for.

Take four fresh eggs, boiled very hard, one-fourth pound of white pease-meal, and about a tablespoonful of good salad oil—if the least rancid it will not do. The eggs must be grated very fine, and mixed with the meal and olive oil, and the whole then be pressed through a tin colander, to form it into grains like small shot, it should next be

put into a frying-pan, set over a gentle fire, and gradually stirred with a broad knife, till it be partially wasted and dried, the test of which will be its yellowish brown color. All insect-eating birds may be kept upon this food throughout the year, except when they appear drooping and unwell, or at moulting time, when a few meal worms may be given to them twice or thrice a day.

Birds—Almond Paste for.

Pea meal, 2 lbs.; blanched sweet almonds, 1 lb.; fresh butter or lard, $\frac{1}{4}$ lb.; moist sugar, 5 oz.; a shred or two of hay saffron, beat to a smooth paste, and granulate it by passing it through a colander. The addition of the yolks of two or three eggs, improves it. Used to feed larks, nightingales, and other insectivorous birds. It will keep good for six months in a dry place.

Bullfinches.

Old birds should be fed with German Paste, and occasionally rape-seed. The Germans occasionally give them a little poppy-seed, and a grain or two of rice, steeped in Canary wine, when teaching them to pipe, as a reward for the progress they make. Bird organs, or flageolets, are used to teach them.

Bird Lime.

Bird lime is an adhesive and a viscid substance placed on twigs of trees or wire-netting to decoy birds. It is also used for catching mice and rats in houses. It is prepared from the middle bark of the holly, mistletoe, or distaff-thistle, by chopping the bark, boiling for several hours in water, straining and exposing for a few weeks to fermentation. It can also be made from wheat-flour, tied in a bag and immersed in a basin of water. If the bag is squeezed afterwards the starch is pressed out and gluten is left on the cloth.

Bird Lime.

The middle bark of the holly, any quantity; boil it for seven or eight hours in water, or until it is soft and tender, then drain the water off, and place it in pits under ground, surrounded with stones; let it remain to ferment, and water it if required until it passes into a mucilaginous state. Then pound it well and wash it in several waters, next leave it for four or five days to ferment and purify itself.

Another.—Linseed oil boiled and burned down to a thick varnish answers even better than the above. In preparing it the oil is put into an iron kettle and set upon a fire, when warm it is lighted also and allowed to burn until it is of the desired thickness. The iron pot should not be over one-third full of oil, and should have a lid to fit pretty closely, by which the oil can be quenched at will. From time to time this must be done to ascertain the condition of the oil. It takes from nine to ten hours to boil it down, and when done it should be put away in a vessel as nearly air-tight as possible, otherwise it will continue to grow thicker and thicker until it becomes unusable. It should be of the consistency of thick syrup.

Bird Lime—How to Use.

There are various methods of using it. It can be either employed on sticks made for the purpose, by which means there is not so much loss of bird lime, or plastered on spots to which the birds are accustomed to come. If used in the former way, holes must be bored into the tree in which to fix the limed sticks. Birds taken with lime should be relieved as soon as caught, or they will flutter themselves to death. Alcohol will wash off the lime. But take care in applying it; small birds can be killed with the smell of alcohol. If their heads are not limed, cover that

part of them with a silk handkerchief and use a sponge to wash off the lime.

Birds—To Preserve.

Birds may be preserved in a fresh state for some time by removing the intestines, wiping the inside out quite dry with a towel, and then flouring them. A piece of blotting paper on which one or two drops of creosote have been placed, is now to be put inside them, and a similarly prepared piece of paper tied round them. They should then be hung up in a cool dry place, and will be found to keep much longer than without undergoing this process.

Birds—Small.

Small birds may be preserved as follows:—Take out the entrails, open a passage to the brain, which should be scooped out through the mouth; introduce into the cavities of the skull and the whole body some of the mixture of salt, alum, and pepper, putting some through the gullet and whole length of the neck; then hang the bird in a cool, airy place—first by the feet, that the body may be impregnated by the salt, and afterwards by a thread through the under mandible of the bill, till it appears to be free from smell; then hang it in the sun, or near a fire: after it is well dried, clean out what remains loose of the mixture, and fill the cavity of the body with wool, oakum, or any soft substance, and pack it smooth in paper.

Blacks.

Lamp black is merely the smoke from various substances. The best is from coal tar. This is the best black for all common painting. Ivory Black or bone black, is only charred bone. It has not the body, nor does it work as freely as lamp black. Asphaltum, although so very transparent, is, when several coats are laid on, a most intense black, but not of much service when exposed to the weather. It is best

used dissolved in turpentine, slightly warm, with or without a little boiled oil. Without the oil, it dries very quickly; with it, much slower. It makes the black varnish used for japanning tin and other metals.

Blackberry.

For the cultivated blackberry the soil should be rich, dry and mellow. Barn-yard manure and bone-dust are its best fertilizers; it is a good plan to mix them with half-rotten straw, or some such thing. They should be planted three feet apart in the rows, and the rows should be six feet asunder.

Blacking (Shoe)—Automatic, or Self-Shining.

Gum-arabic, 4 oz.; molasses or coarse brown sugar, $1\frac{1}{2}$ oz.; good black ink, $\frac{1}{4}$ pint; strong vinegar, 2 oz.; rectified spirit of wine and sweet oil, of each 1 oz.; dissolve the gum in the ink, add the oil, and then rub in a mortar, or shake them together for some time, until they are thoroughly united; then add the vinegar, and lastly, the spirits.

Another.—Lamp Black, $\frac{3}{4}$ oz.; indigo in fine powder, 1 dr.; put them into a mortar or basin, and rub them with sufficient mucilage (made by dissolving 4 oz. of gum in $\frac{1}{4}$ pint of strong vinegar) to form a thin paste; add very gradually, of sweet oil, 1 oz.; and triturate until their union is complete, adding toward the end the rest of the mucilage; then further add of molasses, $1\frac{1}{2}$ oz.; and afterward, successively, of strong vinegar, 2 oz.; rectified spirit, 1 oz.; lastly, bottle for use.

Another.—Mix the whites of two eggs with a tablespoonful of spirit of wine, two large lumps of sugar, crushed, and sufficient finely powdered ivory-black to give the required color and thickness, avoiding excess.

The above are chiefly used for dress boots and shoes. The first two are applied to the leather with the tip of the

finger, or a sponge, and then allowed to dry out of the dust. The third is commonly laid on with a sponge or soft brush, and when almost dry or hard may have its polish heightened with a brush or soft rubber, after which it is left for a few hours to harden. It may also be used to revive the faded black leather seats and backs of old chairs. They all possess great brilliancy for a time; but are only adapted to clean, dry weather, or indoor use. They should all be applied to the leather as thinly as possible, as otherwise they soon crack off.

Blacking—Harness.

Good glue or gelatine, 4 oz.; gum-arabic, 3 oz.; water, $\frac{3}{4}$ pint; dissolve by heat; add of molasses, 5 oz.; ivory-black in very fine powder, 5 oz.; and gently evaporate, with constant trituration, until of a proper consistence when cold; when nearly cold put it into bottles, and cork them down. For use, the bottle may be warmed a little to thin it, if necessary. Does not resist the wet.

Another.—Mutton suet, 2 oz.; beeswax, pure, 6 oz.; soft soap, 2 oz.; lamp-black, $2\frac{1}{2}$ oz.; indigo, in fine powder, $\frac{1}{2}$ oz.; when thoroughly incorporated, further add of oil of turpentine, $\frac{1}{4}$ pint and pour it into pots or tins. Waterproof.

Another.—Beeswax, 1 lb.; soft soap, 6 oz.; ivory-black, $\frac{1}{4}$ lb.; Prussian blue, 1 oz.; ground in linseed oil, 2 oz.; oil of turpentine, $\frac{1}{2}$ pint; to be mixed, etc., as before. Waterproof.

English Water Proof.—Take 3 oz. turpentine, 2 ounces white wax, to be dissolved together over a slow fire; then add one ounce of ivory-black and one dram of indigo, to be well pulverized and mixed together. When the wax and turpentine are dissolved, add the ivory-black and the indigo, and stir till cold. Apply very thin: brush

afterward, and it will give a beautiful polish.

Another.—A good blacking is made of 4 ounces of hog's lard, 16 ounces of neat's-foot oil, 4 ounces of yellow wax, 20 ounces of ivory-black, 16 ounces of brown sugar, and 16 ounces of water. Heat the whole to boiling, and stir it until it becomes cool enough to handle, then roll it into balls about two inches in diameter.

Another.—A cheap and good blacking can be made as follows: Soften two pounds of glue in one pint of water, dissolve two pounds of soap (castile is the best, but most expensive) in one part of warm water; after the glue has become thoroughly soaked, cook it in a glue-kettle, and then turn it into a large pot; place the pot over a hot fire and pour in the soap-water, slowly stirring until all is well mixed; then add a half-pound of yellow wax cut in slices. Let the mass boil until the wax becomes melted, then add half a pint of neat's-foot oil and a sufficient quantity of lamp-black to give it color; let it boil a few minutes, and it will be fit for use.

Another.—When a harness has become soiled, it can be restored by the use of the **French polish**. The ingredients are $4\frac{1}{2}$ pounds stearine, $6\frac{3}{4}$ pounds turpentine, and 3 ounces of coloring or ivory-black. Beat the stearine out to thin sheets with a mallet, then mix it with the turpentine, and subject it to a water bath. While heating, it must be stirred continually; the coloring matter is thrown in after the mass has become thoroughly heated. It is thrown into another pot and stirred until it is cool and thick; if not stirred, the mass will crystallize and the parts become separated. When used, it must be warmed, and a small quantity rubbed on the leather with a cloth; use but little at a time and put on very thin. After it has partially

dried, rub with a silk cloth, and a polish will be produced equal to that of newly varnished leather. This polish is also good for carriage-tops, straps, etc., and will in no way injure the leather.

Blacking—India Rubber Liquid.

Take of India rubber (in small pieces) 18 oz.; hot rape oil, 9 lbs. (say 1 gal.); dissolve; to the solution add of ivory-black (in very fine powder) 60 lbs.; molasses, 45 lbs.; mix thoroughly; further add of gum-arabic, 1 lb. dissolved in vinegar, 20 gal.; reduce the whole to a perfect state of smoothness and admixture by trituration in a paint mill; throw the compound into a wooden vessel, and add, very gradually, of sulphuric acid, 12 lbs.; continue the stirring for one-half hour, repeating it daily for fourteen days; then add of gum-arabic, (in fine powder), 3 lbs.; again mix well, and repeat the stirring for one-half an hour daily for fourteen days longer, when the liquid blacking will be ready for use, or for bottling. The quality is very excellent; but this, probably, does not depend on the presence of India rubber, but on the general correctness of the proportions, and the care and completeness with which they are mixed.

Blacking—India Rubber Paste.

Of India rubber, oil, ivory-black, molasses, and gum-arabic, the same as for their liquid blacking (see above), but dissolving the last in only twelve pounds, say five quarts, instead of twenty gallons of vinegar; grinding to a smooth paste in a color-mill, and then adding of oil of vitriol, 12 pounds, as before. The mass is to be stirred daily for a week, when it will be fit for use, or potting.

Blacking—Varnish.

Alcohol, 1 gal.; white turpentine, $1\frac{1}{2}$ lbs.; gum shellac, $1\frac{1}{2}$ lbs.; Venice turpentine, 1 gill. Let these

stand in a jug in the sun, or by a stove, until the gums are dissolved, then add sweet oil, 1 gill, and lamp-black, 2 oz., and you have a varnish which will not crack when the harness is twisted, like the old shellac varnish.

Blackboards—Artificial.

Blackboards or large writing slates are conveniences or necessities in nearly all schools. A recipe for preparing these or a substitute, cheaply, is of general interest, and we are indebted for the following description to a gentleman of considerable experience. He says. I first have the place of the wall intended to be covered, surrounded by a narrow wooden molding, and then covered by paint. Japan or varnish is necessary in the paint, as with benzine alone the lamp-black rubs off; but as varnish makes the board too smooth to write on, I mix a little fine emery in it, to make it slightly gritty, like a slate; too much emery or a quality of too coarse a grade makes the removal of the chalk marks difficult. For the last purpose I take sheepskin with the wool on, nailed on a small piece of board and always used dry; it is much better than anything else. From time to time, however, the whole blackboard is cleaned with a wet sponge. The best substance for fixing the common lamp-black and emery, is shellac dissolved in alcohol; the quantities are regulated by the circumstances. In warm weather it requires more alcohol. Too much shellac makes the solution too thick; too little causes it to come off. It is to be put on with a flat brush as rapidly as possible, as it dries at once. The blackboard may be used in less than half an hour.

Blackboard Paint.

To make one gallon of paint, take ten ounces of pulverized pumice-stone, six ounces pulverized rotten-stone,

three-quarters of a pound of lamp-black, and mix them with alcohol enough to make a thick paste. Grind the mixture very thoroughly in a paint-mill; then dissolve about fourteen ounces of shellac in the remainder of the gallon of alcohol. Now stir the whole together, and the paint is ready for use. The shellac prevents the paint from rubbing off. If the shellac is of poor quality, it will require a little more. When using, stir often to prevent the pumice-stone from settling. In putting on a second coat, be careful not to rub off the first. One gallon will furnish two coats for sixty or seventy square yards of blackboard, on walls not previously painted.

The surface of a plaster wall that is to be painted for the first time, may be somewhat improved by first putting on a coat of strong glue-sizing, prepared by boiling one pound of glue in a gallon of rain water. Stir in three or four ounces of lamp-black. Put on hot.

Black Cloth—Reviver For.

Bruised galls, one pound; logwood, two pounds; green vitriol, half-a-pound; water, five quarts. Boil for two hours, and strain.

To Renew Black Cloth Clothes.

Beat and brush the garments well, then boil four ounces of logwood in a boiler or copper containing two or three gallons of water for half-an-hour; dip the clothes in warm water and squeeze dry, then put them into the copper and boil for half-an-hour. Take them out and add three drachms of sulphate of iron; boil for half-an-hour, then take them out and hang them up for an hour or two; take them down, rinse them thrice in cold water, dry well, and rub with a soft brush which has had a few drops of olive oil applied to its surface. If the clothes are threadbare about the elbows, cuffs, etc., raise the nap with a teasel or half-worn hat-

ter's card, filled with flocks, and when sufficiently raised, lay the nap the right way with a hard brush.

Black Lustre Color.

Dr. Kielmeyer gives a recipe which is adapted for either paper, cloth, or porous wood. He states that it stands well, is very supple, and has no tendency to get sticky. To prepare it he boils together 8 pounds of glue, previously dissolved in 16 pounds of water; 1 pound potato starch, dissolved in $5\frac{1}{2}$ pounds of water; $5\frac{1}{4}$ pounds of campeachy, extract of 6° Baume; 1 pound 2 ounces of green vitriol, and $8\frac{3}{4}$ pounds of brown glycerine. When thoroughly mixed, he removes the pot from the fire, and continues to stir until the liquid is cold. If the paint be desired thicker or thinner, the amount of starch and glue must be varied as well as the other materials, or the lustre will suffer.

Bladders—To Prepare.

Soak them for twenty-four hours in water, to which a little chloride of lime or potash has been added, then remove the extraneous membranes, wash them well in clean water, and dry them.

Black Lead—To Remove.

To remove black lead from polished steel sides of a grate, first wash them with strong soap and water, using a bit of old flannel for the purpose; then rub them with sweet oil and rotten-stone; afterwards polish in the usual manner with soft leather.

Blankets—To Clean.

When soiled they should be washed, and not scoured, which latter they will be if sent to the scourer's. Shake all the dust from them, plunge them into plenty of hot soap-suds, let them lie till the hands can be borne in the water, wash quickly, rinse in new clean hot suds, shake thoroughly, stretch well, dry, and they will be as nice as new.

Blankets—To Wash.

First shake them well and soak for a quarter of an hour in warm soap lather in which a small quantity of ammonia has been placed, then wash in the same way as flannels, afterwards rinsing well in several waters, the last of which should be nearly cold. They should be dried in the open air, being taken down occasionally and well shaken to raise the nap.

Bleaching.

The operation by which the natural colors of substances are discharged, and they become white or colorless. Bleaching may be performed either by natural means, as exposure to light, air, and moisture, or by chemical agents, as chlorine, chloride of lime, sulphuric acid, etc. In many of the processes adopted for this purpose, both methods are combined.

Bleaching Cotton.

Cotton, from its original whiteness, and little attraction for coloring matter, is more easily bleached than most other substances. On the old plan, it is first well washed in warm water to remove the weaver's paste or dressing, then "bucked" (boiled) in a weak alkaline lye, and after being well washed is spread out upon the grass, or bleaching ground, and freely exposed to the joint action of light, air, and moisture. The operation of "bucking" and exposure is repeated as often as necessary, when the goods are "soured" or immersed in water acidulated with sulphuric acid, after which they receive a thorough washing in clean water, and are dried. From the length of the exposure upon the bleaching ground, this method has been found to injure the texture of the cloth, and from the number of operations required, necessarily becomes expensive, and produces considerable delay; it has therefore very generally given place to the improved system of

chemical bleaching, by means of chloride of lime. In this method, after the first operation of washing and bucking, as in the common process, the cotton is submitted to the action of weak solutions of chloride of lime, and afterwards passed through soured water, when it has only to be thoroughly washed and dried.

Bleaching Linen.

Linen is bleached in a similar way to cotton, but the operation is more troublesome, from its greater affinity for coloring matter.

Bleaching Wool.

Wool is first exposed to the joint action of fuller's earth and soap, in the fulling mill, to remove adherent grease and dirt, and is then well washed and dried, when it is usually found sufficiently white for the purposes of the dyer; but should the slight yellow tint it retains prove objectionable, it is run through water tinged blue with indigo, or it is exposed to the fumes of burning sulphur; the latter method gives it a harsh feel, which is best removed by a bath of soap and water, but this will reproduce its previous yellowishness.

Bleaching Silk.

Silk is bleached by boiling it in white soap and water, to remove the natural yellow varnish that covers it, after which it is subjected to repeated rinsings. Articles that are required to be very white, as gloves, stockings, etc., are also submitted to the action of sulphuric acid, or the fumes of burning sulphur.

Blues.

Copper is the base of most blues, though some are formed from iron and cobalt.

Prussian Blue. is properly a ferrocyanuret of iron, produced by various processes. As a vehicle, dried or calcined blood and horns and hoofs are

used. There are other methods, where animal matter is not used, in which pearlash, eoke, and iron-filings form the compound. It is also chemically prepared with sulphate of iron and prussiate of potash; but in all these preparations the composition is iron and prussic acid. The prussic acid, however, is not in sufficient quantity to make the color in the least degree poisonous.

Ultramarine. This beautiful blue was formerly made from lazulite, the beautiful variegated blue mineral, and was once worth, in Italy, twenty-five dollars an ounce. That used in the arts now is composed of carbonate of soda, sulphur, and kaolin, colored with cobalt. This color has but little body as an oil color, but is of a most brilliant hue, and wears about as well as the Prussian blue. In oil it is a transparent color, but is more dense in distemper, and covers better.

Blue for Ceilings.

Boil slowly for three hours one pound of blue vitriol and one-half pound of the best whiting, in about three pints of water; stir it frequently while boiling and also on taking it off the fire. When it has stood till quite cold, pour off the blue liquid, then mix the cake of color with good size, and use it with a plasterer's brush in the same manner as whitewash, either for walls or ceilings.

Blue—Prussian.

Potash or pearlash, 10 parts; coke, cinders, or coal, 10 parts; iron turnings, 5 parts. Grind into a coarse powder and expose for half an hour to a full red heat, in an open crucible, stirring the mixture occasionally. When the small jets of purple flame cease, which will be in about the time named, allow the mass to cool, then add water to dissolve the soluble matter, and set aside the black foot that remains for a future operation. Next filter the solution, and add sulphate of iron (copperas),

five parts (dissolved), and brighten the color of the precipitate by the addition of muriatic acid. This process yields twenty-five per cent. of Prussian blue (ferro-cyanide of iron) on the quantity of pure potash in the salt employed. The larger the quantity operated on, the greater the relative product.

Boards—To Take Ink Out of.

Strong muriatic acid, or spirits of salts, applied with a piece of cloth; afterwards well washed with water.

Boards—To Get Oil Off.

Mix together fuller's earth and soap lees, and rub it into the boards. Let it dry, and then scour it off with some strong soft soap and sand, or use lees to scour it with. It should be put on hot, which may easily be done by heating the lees.

Boards—To Scour.

Use lime, one part; sand, three parts; soft soap, two parts. Lay a little on the boards with the scrubbing brush, and rub thoroughly. Rinse with clean water, and rub dry. This will keep the boards of a good color, and keep away vermin.

Boiler Explosions—To Prevent.

Frequent inspection and careful management of boilers are the best preventives of explosions, and the insurance of losses by damage from such explosions, by companies established especially for such purposes, secures the desirable inspection; while if the rules adopted by these companies are faithfully observed, good management as well as safety is obtained. The following rules are so plain and practical that they are calculated to meet almost every conceivable exigency:

Low Water.—In case of low water, immediately bank or cover the fires with ashes, or if no ashes are at hand, use fresh coal. Do not turn on the feed under any circumstances, nor tam-

per with or open the safety-valve. Let the steam outlets remain as they are.

In Cases of Foaming.—Close throttle, and keep closed long enough to show true level of water. If that level is sufficiently high, feeding and blowing will usually suffice to correct the evil. In cases of violent foaming, caused by dirty water, or change from salt to fresh, or vice versa, in addition to the action before stated, check draught and cover fires with fresh coal.

Safety-Valves.—Raise the safety-valves cautiously and frequently, as they are liable to become fast in their seats and useless for the purpose intended.

Safety-Valve and Pressure-Gauge.—Should the gauge at any time indicate the limit of pressure allowed by any company, see that the safety-valves are blowing off. In case of difference notify the company's inspector.

Gauge-Cocks—Glass-Gauge.—Keep gauge-cocks clear and in constant use. Do not open them too suddenly. Glass gauges should not be relied on altogether.

Leaks.—When leaks are discovered, they should be repaired as soon as possible.

Blisters.—When a blister appears, there must be no delay in having it carefully examined, and trimmed or patched, as the case may require.

Clean Sheets.—Particular care should be taken to keep sheets and parts of boilers exposed to the fire perfectly clean; also all tubes; flues and connections well swept. This is particularly necessary where wood or soft coal is used for fuel.

Blowing-Off.—Blow down at least once in two weeks—every Saturday night would be better. In case the feed becomes muddy, blow out six or eight inches every day. Where surface blow-cocks are used, they should be

often opened for a few moments at a time.

Filling Up the Boiler.—After blowing down, allow the boiler to become cool before filling again. Cold water pumped into hot boilers is very injurious from sudden contraction.

Exterior of Boiler.—Care should be taken that no water comes in contact with the exterior of the boiler, either from leaky joints or other causes.

Removing Deposit and Sediment.—In tubular boilers, the hand-holes should be often opened, and all collections removed from over the fire. Also, when boilers are fed in front and blown off through the same pipe, the collections of mud or sediment in the rear end should be often removed.

General Care of Boilers and Connections.—Under all circumstances keep the gauges, cocks, etc., clean and in good order; and things generally, in and about the engine and boiler room, in neat condition.

Boiler Incrustations—To Prevent.

A very simple mode of preventing boiler incrustation is in general use at the Darmstadt gas-works. The engine has worked day and night since 1854 almost without interruption, and the formation of calcareous deposits has been entirely prevented by the use of crude proligneous acid, combined with tar; it is either introduced into the boiler or mixed with the feed water. Since the mixture has been in use they have never had a stoppage through incrustation, and have never had to use a hammer to remove scale. Each year, during the summer, when less gas is required, the boiler is opened, and perhaps a couple of handfuls of loose sediment taken from the bottom. The quantity employed is very small—just enough to redden litmus paper; consequently the iron is not attacked,

as indeed is apparent from the fact that the boiler has been but twice under repair.

Boilers—To Prevent Lime Deposits.

Put into your cistern or tank, from which the boiler is fed, a sufficient amount of oak tan bark, in the piece, to color the water rather dark; run four weeks and renew. This plan has been much used in the lime-stone sections of Ohio, giving general satisfaction.

Boilers (Steam)—To Work Without Making Smoke.

Smoke cannot be consumed when once made, but it can be prevented by properly proportioned fire-grates, with due admission of air and careful firing, and without the need of expensive or patent apparatus. The subject may be clearly explained by a simple illustration. Petrolene or naphtha and such like compounds form the most smoky fuel; yet for a few cents lamps can be purchased which are familiar to all, which consume it without the least trace of smoke. The most simple cottager knows that his lamp never need smoke unless it is turned up too high. It smokes in that case because it is then worked beyond its power. Immediately it is turned lower, the lamp gives better light at a less cost and without waste. It is just the same with boiler and other fire grates. When they smoke it shows they are overworked. Lessen the quantity of fuel burned in each grate to the proper proportion, and keep the supply of fuel regular, and the smoke will cease, and the greatest economy will be received.

A bright and smokeless flame as well indicates that a large furnace is doing its proper and highest duty, as the bright flame shows the lamp to be in order. It is well that public bodies should insist on smoke being prevented, as much as possible; but mischief and

dissatisfaction result if the only way to satisfy complaint is by adopting some of the special apparatus. The true way to to prevent smoke is to have sufficient boiler-room to generate the steam required slowly enough to allow the combustion to be complete. There is greater economy in this than in futile efforts to force too small a boiler to do the required work with ruinous waste.

Bones—To Dye any Color.

Boil the bones first for a good while; then in a lye of quick-lime mixed with chamber-lye, put either verdigris, or red or blue chalk, or any other ingredient fit to procure the color you want to give to the bones. Lay the bones in the liquor and boil them; they will be perfectly dyed.

Bones—To Whiten.

Put a handful of bran and quick-lime together, in a new pipkin, with a sufficient quantity of water, and boil it. In this put the bones, and boil them also till perfectly freed from greasy particles.

Book-Moths.

Literary people are occasionally annoyed by the depredations of minute insects, which feed luxuriously on their fine books, manuscripts and pamphlets. They are popularly known as book moths. They appear to be in search of the paste, glue and sizing which are used by the binders. However old and dry the books may be, if the room in which they are kept, or the cases in which they are arranged, are slightly damp it softens the old glue or size by imbibition to just the condition required by the invaders. In gnawing it from the paper surface into which it originally penetrated, they also destroy the texture of the leaves, so that costly works are quite ruined. There is no better remedy than placing the books at once in a dry room where the moisture evaporates; and if the sun-

light acts upon the windows daily, so much the better. The moths disappear when the paste becomes too hard for them. Or rather their activity is suspended, to be revived on again removing the books into a damp apartment. Russian binding is so offensive to them that they cannot attack books in Russia leather binding. It is not perhaps, so generally known as it deserves to be, that a few drops of any kind of perfumed oil will secure books and manuscripts from the deteriorating effects of mould and damp.

Bookbinders' Varnish.

Five ounces of shellac are to be dissolved in one quart of rectified spirits of wine; add ten ounces of burned and recently heated animal charcoal, boil a few minutes, subtract a little of the liquid, and see if it is colorless; if not add a little more charcoal. When colorless, strain through silk, and afterwards filter through blotting paper; if wanted perfectly pure, strain when cold.

Books—Stains and Marks from.

A solution of oxalic acid, citric acid or tartaric acid, is attended with the least risk, and may be applied to paper and prints without fear of damage. These acids, which take out writing ink and do not touch the printing, can be used for restoring books where the margins have been written upon.

Books—To Remove Stains from.

To remove ink stains from a book, first wash the paper with warm water, using a camel's hair brush for the purpose. By this means the surface ink is got rid of; the paper must now be wet with a solution of oxalate of potash, or, better still, oxalic acid, in the proportion of one ounce to half a pint of water. The ink-stains will immediately disappear. Finally, again wash the stained place with clean

water, and dry it with white blotting paper.

When the paper is disfigured with stains of iron, it may be perfectly restored by applying a solution of sulphuret of potash, and afterwards one of oxalic acid. The sulphuret extracts from the iron part of its oxygen, and renders it soluble in diluted acids.

The most simple, and at the same time very effectual, method of rasing spots of grease, wax, oil, or any other fat substance is by washing the part with ether, and placing it between white blotting-paper; then with a hot iron press above the part stained, and the defect will be speedily removed. In many cases, where the stains are not bad, rectified spirits of wine will be found to answer the purpose.

Another method of removing grease from paper is to strew over the spot, or spots, a little finely powdered French chalk, cover this with a piece of clean blotting-paper, then hold a hot iron close to the paper without bringing it in contact.

Bindings—To Restore Calf.

Wash lightly with a soft sponge dipped in a preparation consisting of half an ounce of the best glue dissolved in a pint of warm water, to which add a teaspoonful of glycerine and a little flour paste. Rub well with chamois leather when dry.

Books—Hints as to Using.

Never handle books unless with clean hands.

Never hold a book near the fire.

Never drop a book on the floor.

Never turn leaves with the thumb.

Never lean or rest upon an open book.

Never turn down the corners of leaves.

Always keep your place with a book-mark.

Never leave a book open face downwards.

Always turn leaves from the top with the middle or forefinger.

Never pull a book from a shelf by the binding at the top, but by the back.

Never place another book, or anything else, upon the leaves of an open book.

Never close a book with a pencil, a pad of paper, or anything else between the leaves.

Always open a large book from the middle, and never from the ends or cover.

When opening a book hold the leaves loosely, so as to let them yield gently. By opening a book with the leaves grasped tightly to the covers with each hand, an undue stress is put on the binding and the back of the book frequently broken.

Never cut the leaves of a book or magazine with a sharp knife, as the edge is sure to run into the print.

Never write upon a paper laid upon the leaves of an open book, as the pencil or pen point will either scratch or cut the book leaves.

Never lend the borrowed book, but return it as soon as you have done with it, so that the owner may not be deprived of its use.

Boots or Shoes (White Jean)— To Clean.

If you have not boot-trees, stuff the boot as full as possible with common cotton wadding or old rags, to prevent any creases; then mix some pipeclay with water to rather a stiff paste, wash the jean boots with soap and water and a nail brush, using as little water as possible to get the dirt off. When they look tolerably clean rub the pipeclay with a flannel well over them and hang them to dry. When dry beat out the superfluous clay with the

hand and rub them till they look smooth. Flake white may also be used.

Boots and Shoes—Care of.

Boots and shoes, if taken care of properly, will last two or three times longer than they usually do, and, at the same time, fit the feet far more satisfactorily, and keep them dry and more comfortable in wet and cold weather. The upper leather should be kept soft and pliable, while the soles need to be hard, tough and impervious to water.

The first thing to be done with any pair of new shoes, is to set each one on a platter or a dinner plate, and pour on boiled linseed-oil sufficient to fill the vessel to the upper edge of the soles. Allow the leather to absorb as much oil as it will for eight hours. Linseed-oil should not be applied to the upper leather as it will soon become dry, rendering the leather hard and tough. But if the soles be saturated with this oil, it will exclude the dampness and enlarge the pegs, so that the soles will never get loose from the upper leather.

If the shoes be sewed, the linseed oil will preserve the thread from rotting. Now wet the upper leather thoroughly when the boots or the shoes are to be put upon the feet, so that those parts which are tight may render a trifle, adapting the form of the shoe to the foot far more satisfactorily than when the upper leather is not wet. Keep them on the foot until nearly dry. Then give the upper leather a thorough greasing with equal parts of lard and tallow, or tallow and neat's foot oil.

If shoes be treated in this manner and a row of round-headed shoe nails be driven around the edge of the soles, they will wear like copper, and always set easy to the feet. Boots and shoes should be treated as suggested, and worn a little several months before they are put to daily service. They

should be cleaned frequently, whether they are worn or not, and should never be put to stand in a damp place, nor be put too near the fire to dry. In cleaning, be careful to brush the dirt from the seams, and not to scrape in with a knife, or you will cut the stiches. Let the hard brush do its work thoroughly well, and the polish will be all the brighter. Do not put on too much blacking at a time, for if it dries before using the shining brush the leather will look brown instead of black.

Boots and Shoes—India Rubber Water Proof for.

Spermaceti, four parts; India rubber (small), one part. Melt with a gentle heat, then add tallow or lard, ten parts; amber or copal varnish, five parts. Well mix and apply the composition to the leather with a paint-brush. Cut the rubber into very small pieces, and let it take its time to dissolve, say four or five hours.

Boots, Kid—To Clean.

If the kid boots are not very soiled they may be cleaned in the following manner:—Put half an ounce of harts-horn into a saucer, dip a bit of clean flannel in it and rub it on a piece of white card soap; rub the boots with this, and as each piece of flannel becomes soiled, take a fresh piece; the boots will look like new.

Boots, Pegged—To Prevent Ripping.

Pegged boots, it is stated, if occasionally dressed with petroleum between the soles and the upper leather, will not rip. If the soles of boots or shoes are dressed with petroleum they will resist wet and wear well. The pegs, it is said, are not affected by dryness after being well saturated with this liquid.

Boots, Kid—To Restore Color of.

Take a small quantity of good black ink, mix it with the white of an egg, and apply it to the boots with a soft sponge.

Boots, Kid—To Soften.

Melt a quarter of a pound of tallow, then pour it into a jar, and add to it the same weight of olive oil, stir, and let it stand still; apply a small quantity occasionally with a piece of flannel. Should the boots be very dirty, cleanse with warm water. It will soften any leather.

**Boots and Shoes (Summer) —
To Preserve Through the
Winter.**

Wash the blacking off; let them dry; then oil them with castor or neats-foot oil. When you wear them they will be soft and pliable, and will last longer if preserved in this way. After you have worn them a few days they are ready for blacking.

**Boots and Shoes (Rubber)
—To Mend.**

Get a piece of pure rubber—an old shoe—vulcanized rubber will not do; cut it into small bits. Put it into a bottle, and cover to twice its depth with spirits of turpentine or refined coal tar naphtha—not petroleum naphtha. Stop the bottle and set one side, shaking it frequently. The rubber will soon dissolve. Then take the shoe and press the rip or cut close together, and put on the rubber solution with a camel's hair brush. Continue to apply so fast as it dries until a thorough coating is formed. Spirits of turpentine dissolves the rubber slowest, but forms the most elastic cement.

Another.—Purchase a can of rubber cement, which can be found in large cities in rubber stores; also some rubber for patches, as new rubber is much better than old boots or shoes. To

make the patches adhere, it is necessary to remove the cloth from them. To do this, moisten the cloth with benzine and remove immediately. Cut the patches the proper size to cover the hole in the boot. Make the boot around the hole rough, the size of the patch, with a wood or shoemaker's file; apply the cement to the boot, and the patch with a case knife, and let them lie in a warm, dry room from thirty to sixty minutes; then put the patch on the boot, and press it down firmly. Be very particular about the edges of the patch. After it has been on a short time examine it again, to see that it has not started off; if it has, press it down again. Do not use the boot under forty eight hours after the patch is put on. One fifty cent can of cement will last a family several years. Keep the cover on the can when not in use, as it dries up very quickly. If the cement becomes dry cut it with benzine.

Boots Squeaking—To Prevent.

Squeaking boots or shoes are a great annoyance, especially in entering a sick room, or a church after the service has commenced. To remedy it, boil linseed oil and saturate the soles with the same. •

Boots—To Stop Creaking.

Drive a small peg into the middle of the sole.

**Boots and Shoes—Waterproof
Composition for.**

Boiled oil one pint; oil of turpentine, black rosin, and bees' wax, of each three ounces. Melt the wax and rosin, then stir in the oil, remove the pot from the fire, and when it has cooled a little, add the turpentine.

**Boots and Shoes (Soles of)—
To Make Waterproof.**

Experience has proved that a coat of gum copal varnish applied to the

soles of boots and shoes, and repeated as it dries until the pores are filled and the surface shines like polished mahogany, will make the soles waterproof, and also cause them to last three times as long as ordinary soles.

Boots and Shoes—To Water-proof.

Linseed oil, one pint; oil of turpentine, or camphine, a quarter of a pint; yellow wax, a quarter of a pound; Burgundy pitch, a quarter of a pound. Melt together with a gentle heat, and when required for use, warm and well rub into the leather before a fire, or in the hot sun. The composition should be poured, when melted, into tin boxes. Or—warm a little beeswax and mutton suet until it is a liquid, and rub some of it slightly over the edges of the sole, where the stitches are.

Boot-Top Liquid.

Oxalic acid and white vitriol, of each one ounce; water, one pint and a half. To be applied with a sponge to the leather, previously washed, and then wiped off again. This preparation is poisonous.

Borax and its Uses.

The utility of borax for medicinal purposes, such as relieving soreness of the throat, and for the cure of thrush in young children, has long been known, but it is only in the present day that its good qualities as an antiseptic have become known, and its use in every kind of domestic work, in the laundry, in the garden, vinery and greenhouse, and even for the toilet, under various forms specially prepared for all personal and domestic purposes, has been promoted by its production in small packets, which may be purchased of almost any chemist, oilman, grocer, or dealer, throughout the world.

Borax as an Antiseptic.

The Patent Borax, which consists of a combination of boron and sodium, acts in a marvelous manner as an arrester of decay, and as such is useful for the preservation of meat, milk, butter, and all articles of animal food liable to taint and decay, especially in hot weather. When infused in small quantities in water, it preserves and softens it for drinking, cooking, washing, and all household purposes; it whitens linen and cleanses it far better than soda; it kills harmful insect life, though perfectly harmless to human beings and domestic animals; it cleanses and heals ulcers, festering wounds, sore throat, etc.; is useful in the nursery for washing the heads of children, cleans sponges, destroys unpleasant and unwholesome smells, and is beneficial to teeth and gums when used as a tooth powder, or put in water used for washing the teeth.

Borax for Cleansing.

A solution in hot water, allowed to cool, is useful for washing any kind of glass or china, imparting a lustre and brightness to them that they never exhibit when washed in the ordinary way. When it is put into water used for washing floors it destroys all vermin with which the solution comes in contact.

Borax for Killing Insects.

When sprinkled in the form of powder on places infested with insects, black beetles, etc., these troublesome pests will soon disappear.

Borax in Cookery.

A few grains added to the tea before the water is poured on it greatly improves the flavor of the infusion. When used instead of soda, or carbonate of soda, in cooking vegetables, such as greens, peas, beans, etc., it improves their flavor, preserves their color, and

renders them tender. Vegetables eaten in an uncooked state, as salad, are rendered more crisp and of a better flavor, by steeping them for a short time before they are brought to table in a solution of borax.

Borax as a Preservative of Meat, &c.

Meat may be preserved and taint removed by soaking it for a short time in a solution of borax, or by sprinkling it with the dry powder. Game, poultry, hams, bacon, and all kinds of meat may be thus preserved. Milk cans should be washed with the solution, and milk itself may be preserved and kept sweet for some time by adding to each quart about half a thimbleful of this prepared borax dissolved in a tablespoonful of hot water. Butter may also be preserved by washing it in a solution of borax, or sprinkling the powder over it, or the cloths in which it is wrapped.

Borax in the Laundry.

For washing add a half pound packet to every ten gallons of hot water used; let the clothes soak all night, in the solution; in the morning give them a slight boil, adding a little more borax, if they be very greasy or dirty. By this means the clothes are rendered whiter, soap is saved, and the hands are uninjured. It acts, moreover, as a disinfectant, if the clothes have been taken from the bed or person of anyone who is suffering from any infectious disorder. Flannels are rendered softer, and the appearance of lace, fine articles, colored prints, soiled ribbons, etc., greatly improved by washing them in this solution. A teaspoonful to each pint of starch, when hot, will add to the stiffness and gloss of linen when ironed.

Borax in the Toilet.

As a wash for the mouth add half a teaspoonful of spirits of camphor, and

a teaspoonful of tincture of myrrh to a pint of hot water, in which a small packet of borax has been dissolved, and use a wineglassful of this mixture in half a tumbler of water, when brushing the teeth. When the mouth is washed out with this solution, it removes the smell of tobacco and any unpleasant odor arising from decayed teeth. Camphorated chalk dentifrice is improved as a tooth powder by the addition of a little powdered borax. For washing hair-brushes, sponges, etc., a solution of a small packet in a pint of hot water should be used.

Borax in the Nursery.

A little borax added to water for bathing infants and children has a beneficial effect on the skin. For cleansing the hair and removing scurf or dandruff wash the head with a solution of a small packet of borax in a pint of hot water, after which the head should be rinsed with cold water, and carefully dried. This wash may be improved by the addition of half-an-ounce of rosemary spirit sold by any chemist.

Borax in the Garden.

A solution made by dissolving borax in hot water in the proportion of a small packet of the former to a pint of the latter, will kill the green fly on roses and other plants. A weaker solution may be used for syringing the plants. When applied to the stems of fruit trees, and other trees, it destroys all insects in and about the bark, and clears the blight on apple trees. For these purposes the solution should be applied with a brush. For washing the shelves, boards and woodwork of greenhouses, the solution is especially valuable, and when used for syringing vines in the proportion of a pint of the solution to ten gallons of water, and half-a-pound of borax dry soap, as soon as the grapes

have been thinned, it will keep them free from red spider and other insects.

Borax—To Prepare for the Blow-Pipe.

Take one ounce of borax, coarsely powdered, put into a clean crucible, and cover it loosely. Put the whole into a furnace, and watch it till it ceases to swell, then augment the heat, and when the whole fuses quietly, take it out, and pour it into a wedgewood-ware or metallic mortar, and when cold, reduce it to an impalpable powder, in which state it is to be used.

Borax Welding—Substitute for.

Copper, two ounces; saltpetre, one ounce; common salt, six ounces; black oxide of manganese, one ounce; prussiate of potash, one ounce; all pulverized, and mixed with three pounds of nice welding sand, and use the same as you would sand. High tempered steel can be welded with this at a lower heat than is required for borax.

Botanical Specimens for Preservation—To Dry.

The plants to be preserved should be gathered when the weather is dry. Place the ends in water, and let them remain in a cool place till the next day. When about to be submitted to the process of drying, place each plant between several sheets of blotting paper, and iron it with a large smooth heater, pretty strongly warmed, till all the moisture is dissipated. Colors may thus be fixed, which otherwise become pale, or nearly white. Some plants require more moderate heat than others, and herein consists the nicety of the experiment; but it is generally found that if the iron be not too hot, and is passed rapidly yet carefully over the surface of the blotting paper, it answers the purpose equally well with plants of

almost every variety of hue and thickness. In compound flowers, with those also of a stubborn and solid form, as the *Centaurea*, some little art is required in cutting away the under part, by which means the profile and forms of the flowers will be more distinctly exhibited. This is especially necessary when the flowers are fixed down with gum upon the paper previous to ironing, by which means they become almost incorporated with the surface. When this very delicate process is attempted, blotting-paper should be laid under every part excepting the blossoms, in order to prevent staining the white paper. Great care must be taken to keep preserved specimens in a dry place.

Bottles—To Clean.

There is no easier method of cleaning glass bottles than putting into them fine coal-ashes, and well shaking, either with water or not, hot or cold, according to the substance that fouls the bottle. Charcoal left in a bottle or jar for a little time will take away disagreeable smells.

If bottles are cleaned with shot it should be seen that none are left sticking to the sides or corners of the bottles, as should these be refilled with vinegar, wine, cider, etc., the shot will impregnate the liquid with lead. Small pebbles are preferable.

Bottles—To Sweeten when Musty.

Sweeten with sulphuric acid and water mixed in the proportion of a quart of water to half a pint of acid.

Bottles—Sealing Compound for.

Gelatin mixed with glycerine yields a compound liquid when hot, but becoming solid by cooling, at the same time retaining much of the elasticity. Bottles may be hermetically sealed by dipping their necks into the liquid

mixture, and repeating the operation until the cap attains any thickness required.

Bottles—Wax for.

Take one pound of resin, one pound of beeswax, and half a pound of tallow. Mix these with red or yellow ochre, soot or Spanish whiting, according to the color you require. Melt the whole carefully, stirring it all the time. If it be likely to boil over, stir it with a candle end, which will allay the violence of the ebullition.

Bouquets of Colored Grass.

The grasses should be gathered while the seeds are green, so that after having been hung in a dry, dark place a week or two, or until thoroughly dried, the seed will not rattle off when shaken. The finer seeded the grasses the handsomer the bouquets; and yet sprigs of green oats work up tastily.

The ingredients required are simple and cheap, viz.: Common starch and dry chrome paints of as many colors as you wish; an ounce of each is sufficient for making a good sized bouquet. Dissolve in cold water three tablespoonfuls of starch; then pour on boiling water until cooked; let cool; arrange upon the table your paints, grasses and starch. Into the starch dip the sprays required for the several colors, shake, and then brush into the paint of whatever color you wish; shake again and lay them one side upon a board or convenient place to let remain undisturbed until dry. Serve the sprays for each different color in the same way. When dry, lightly shake off the surplus paint, if any, and then form into bouquets. These, particularly when used in connection with crystallized grasses and put into a nicely made wall basket of shield form and hung upon the wall, or even into a vase, are well worth the "care and trouble" of making.

Bouquet—To Keep Bright and Fresh.

Sprinkle it lightly with fresh water, and put it in a vase containing soap-suds. Each morning take the bouquet out of the suds, and lay it sideways in clean water; keep it there a minute or two, then take it out and sprinkle the flowers lightly by the hand with water. Replace it in the suds, and it will bloom as when first gathered. Change the suds every three or four days.

Boys—Mr. Gladstone's Advice to.

What Mr. Gladstone has to say to young boys about success in life ought to be worth reading and worth thinking about.

"Be sure that every one of you has his place and vocation on this earth, and that it rests with himself to find it.

"Do not believe those who too lightly say, 'nothing succeeds like success.' Effort—honest, manful, humble effort—succeeds by its reflected action, especially in youth, better than success, which indeed too easily and too early gained, not seldom serves, like winning the first throw of the dice, to blind and stupefy.

"Get knowledge all you can.

"Be thorough in all you do, and remember that, though ignorance often may be innocence, pretension is always despicable. But you, like men, be strong and exercise your strength.

"Work onward and work upward, and may the blessing of the Most High soothe your care, clear your vision, and crown your labors with reward."

Boys—How to Attach to Farm Life.

One of the surest methods of attaching a boy to the farm is to let him have

something upon it for his own. Give him a small plot of ground to cultivate, allowing him the proceeds for his own use. Let him have his steers to break, or his sheep to care for. The ownership of even a fruit tree, planted, pruned and brought to bearing by his own hands, will inspire him with an interest that no mere reward or wages can give. In addition to the cultivation of a taste for farm life which such a course will cultivate, the practical knowledge gained by the boy will be of the highest value. Being interested, he will be more observant, and will thoroughly earn whatever is necessary for his success. Do not, when the boy is in a position to realize from the sale, take away his profits from him.

Brass.

An alloy of copper and zinc. Brass was formerly manufactured by cementing granulated copper, or copper clippings, with calcined calamine and charcoal, in crucibles, exposed to a bright heat. The alloy was found in lumps at the bottom of the crucible on cooling. These were remelted and cast into ingots. At the present day, brass is generally made by direct union of the metals. This process requires much care, owing to the different degrees of fusibility of copper and zinc. The proper quantity of zinc is first melted, and slips of copper plunged into it, which are rapidly dissolved, as it were, and the addition is continued until an alloy is formed, somewhat difficult of fusion, when the remainder of the copper is added. The brass thus formed is broken into pieces, and remelted under charcoal, and a proper addition of either zinc or copper made, to bring it up to the color and quality desired. It is next cast into plates, or other forms, in molds of granite. When submitted to the rolling-press for reduction to

thin plates, it requires to undergo the operation of annealing several times.

Fine Brass.—2 parts of copper to 1 part of zinc. This is nearly one equivalent each of copper and zinc, if the equivalent of the former metal be taken at 63.2; or 2 equivalents of copper to 1 equivalent of zinc, if it be taken with Liebig and Berzelius, at 31.6.

Another—Copper 4 parts, zinc 1 part. An excellent and very useful brass.

Brass—Another Kind of.

The difficulty of uniting iron to brass is created by the unequal rate of expansion in the two metals, which destroys the unity when the temperature is changed. The formula is as follows: Tin, three parts; copper, thirty-nine and a half parts; zinc, seven and a half parts.

Brass—To Deposit on Zinc and Other Metals.

It is easy enough to electro-plate brass objects with copper, silver or gold, by means of the galvanic battery; but the deposition of brass on other metals is not so easy. Brass being an alloy of copper and zinc, there is a tendency to deposit the copper in preference, if we use a solution of sulphate of copper and sulphate of zinc, mixed, for our deposition bath. Experience has proved that weak currents, produced by weak batteries, have especially a tendency to deposit only one metal out of the mixture, of diverse metallic salts, and it requires a strong current to deposit them together, so as to obtain an alloy. But strong currents possess the grave objection of depositing thick, irregular, brittle films, which do not adhere well and easily peel off. Hence it is desirable to use a preparation of the metallic salts, which will permit their simultaneous precipitation at the same time with a weak current.

Such a preparation was given recently by Walenn, in England. It had already been found that by using in the bath the cyanides of copper and zinc, (cyanides, by the way, are always used in depositing gold and silver,) the alloy may be much more easily deposited than from the sulphides. The manufacturers of gas-fixtures make their castings of chandeliers and brackets mostly of zinc, and then electro-plate them with brass. This method is followed at present, also, in making statuary. It is prepared in quantity for the trade on a large manufacturing scale. The practice in such establishments, thus far, is to dissolve cyanide of copper and zinc in a solution of cyanide of potassium and a salt of ammonium, so as to obtain a more soluble double or triple salt of the metal, with potassium and ammonium.

This preparation, notwithstanding it allows the deposition of the alloy to take place regularly, has the defect of evolving hydrogen gas in great quantity, which interferes with the galvanic current; and this defect has been removed by the prescription of Walenn, which runs as follows: To a mixed solution of cyanide of potassium and neutral tartrate of ammonia in water, add the cyanides of copper and zinc till saturated, then add the oxides of the same metals; that is, black oxide of copper and unadulterated zinc-white, and let the liquid dissolve as much of them as possible. This preparation being used as a bath causes the evolution of hydrogen to be made much less. It may even be entirely prevented by the addition of ammonide of copper, when a very weak galvanic current will suffice. If the color of the brass is too pale, a little more copper salt is to be added to the solution; if too deeply copper-colored, a little more of the zinc salt.

A large brass plate is used for the positive electrode, the object to be coated being attached to the negative one. If everything works right, the brass plate will lose as much in weight as the object gains by the deposit. As a general hint for all electro-plating, we must observe that the objects to be coated must be well cleaned, scrubbed with fine sand, washed, then scrubbed again, and then connected with the zinc pole of the battery before being placed in the trough; and that the best way of treatment after the deposit is formed, is to wash in clear water and dry in the sawdust of a non-resinous wood. If the solution is worked at an elevated temperature, the contact of the coating will be promoted. Finally, we may observe that acid solutions give "mat" deposits, while alkaline deposits give the reverse, a bright or bristling coating.

Brass—To Bronze.

For bronzing the brass objects are first made warm, and washed in a hot solution of ammonium chloride (*sal ammoniac*), and then placed over night in a tolerably diluted solution of two parts cupric acetate (*verdigris*) and one part ammonium chloride in six parts vinegar.

The next morning they are taken out and washed. A paste to be applied with the brush is made by boiling sixteen parts ammonium carbonate and sixteen parts cupric sulphate in 200 parts vinegar till the latter is almost entirely evaporated; then adding one part of oxalic acid, and four parts of ammonium chloride dissolved in 200 parts of vinegar; the whole is placed over the fire till it boils, then cooled, filtered and preserved in well stoppered bottles. Clean thoroughly the object to be bronzed, heat it, and apply the liquid with a fine brush. After giving it time to act, pour on boiling water, and rub with a dry oily

cotton rag, and then with dry cotton, till every trace of the vinegar has disappeared.

Brass, Coating.

Brass plates and rods may be covered with a superficial coating of brass by exposing them in a heated state to the fumes of melted zinc, at a high temperature. Use: for rolling into thin plates, or drawing into wire. The celebrated spurious gold wire of Lyons is thus made.

Another.—Vessels of copper may be coated with brass, internally, by filling them with water strongly acidulated with muriatic acid, adding some amalgam of zinc and cream of tartar, and then boiling for a short time.

Brass—To Coat with Tin.

It is often desirable to coat brass, copper or lead with a thin covering of tin. This can be managed thus: Half a pint of table salt and a quarter pound of cream of tartar are dissolved in about five gallons of water. Some tin scrapings or filings are then added to the water. The articles to be coated are then put into the solution and smartly boiled, being stirred all the time, until the requisite coating is given. Boiling in a tin vessel without the filings will give a very fair coating, but of course not so good.

Brass—To Cover with Beautiful Lustre Colors.

One ounce of cream of tartar is dissolved in one quart of hot water, to which is added half an ounce of tin salt (protochloride of tin) dissolved in four ounces of cold water. The whole is then heated to boiling, the clear solution decanted from a trifling precipitate, and poured under continual stirring into a solution of three ounces hyposulphite of soda in one-half a pint of water, whereupon it is again heated

to boiling, and filtered from the separated sulphur. This solution produces on brass the various luster-colors, depending on the length of time during which the articles are allowed to remain in it. The colors at first will be light to dark gold yellow, passing through all the tints of red to an iridescent brown. A similar series of colors is produced by sulphide of copper and lead, which, however, are not remarkable for their stability; whether this defect will be obviated by the use of the tin solution, experience and time alone can show.

Brass—To Clean.

Take one tablespoonful of oxalic acid, and one half pint soft water, and then add one small package of tripoli (such as you buy for ten or twenty cents), or, say two good tablespoonfuls. This will bring a beautiful polish. Allow the mixture to remain on a few minutes, and wipe off with dry waste or woolen rag.

Another.—Rotten stone, 2 oz.; oxalic acid, $\frac{1}{2}$ oz.; sweet oil, $\frac{3}{4}$ of an oz.; turpentine enough to make a paste. Apply it with a little water.

Brass—Cleaning of.

Rub the surface of the metal with rotten stone and sweet oil, then rub off with a piece of cotton flannel and polish with soft leather. A solution of oxalic acid rubbed over tarnished brass soon removes the tarnish, rendering the metal bright. The acid must be washed off with water, and the brass rubbed with whitening and soft leather. A mixture of muriatic acid and alum dissolved in water, imparts a golden color to brass articles that are steeped in it for a few seconds.

Brass—Cleansing Solution for.

Put together two ounces sulphuric acid, an ounce and a half nitric acid, one

dram saltpetre and two ounces rain water. Let stand for a few hours, and apply by passing the article in and out quickly, and then washing off thoroughly with clean rain water. Old discolored brass chains treated in this way will look equally as well as when new. The usual method of drying is in sawdust.

Brass Ornaments—To Clean.

Brass ornaments, that have not been gilt or lacquered, may be cleaned and a very brilliant color given to them by washing them with alum boiled in strong lye, in the proportion of an ounce to a pint, and afterwards rubbing them with strong tripoli.

Brass Ornaments—To Preserve.

This may be done by two simple processes. The first is to beat sal ammoniac into a fine powder, then to moisten it with soft water, rubbing it on the ornaments; which must be heated over charcoal and rubbed dry with bran and whiting. The second is to wash the brass work with roche alum boiled in strong lye, in the proportion of an ounce to a pint. When dry it must be rubbed with fine tripoli. Either of these processes will give to brass the brilliancy of gold.

Brass—To Temper, or Draw its Temper.

Brass is rendered hard by hammering or rolling, therefore when you make a thing of brass, necessary to be in temper, you must prepare the material before shaping the article. Temper may be drawn from brass by heating it to a cherry red, and then simply plunging it into water the same as though you were going to temper steel.

Brass—For Wire.

Copper, 34 parts; calamine, 56 parts. Mix.

Brasses, Britannia Metal, Tins, Coppers, Etc.—To Clean.

Use rotten stone, soft soap, and oil of turpentine, mixed to the consistency of stiff putty. The stone should be powdered very fine and sifted. The articles should first be washed with hot water, to remove grease; then a little of the above mixture, with a little water, should be applied to the metal, and then rubbed off briskly with dry, clean rag or leather, and a beautiful polish will be obtained.

Brasses Attached to Furniture.

Should be cleaned with either powdered whitening or seraped rotten stone, mixed with sweet oil and rubbed on with chamois leather.

Bread—White.

It is well known that the whiter the loaf the less nourishment is in it. Why is this? Because in the process of refining the flour everything designed to darken it is thrown out.

Hence the phosphates, nitrogen, considerable of the gluten, all the potash salts, and many of the nourishing constituents, which are in the bran, are all refined out, in order to make the flour white.

These mineral substances effect a wonderful change in the human system when all are left in the bread. Their removal leaves an impoverished food-stuff, which will not supply the wastes of the body.

But some say these materials are a very small part of the bread. Very true. The pepsin in the gastric juice is a very small part of the gastric juice, but that small portion is necessary. The ptyaline is only an hundredth part of the saliva, yet it is absolutely necessary.

So the portions refined out of the wheat in order to make a very white flour are the very essential portions of the food necessary to sustain the whole machinery of the body in health and strength.

The white bread is nearly all starch, and starch is the most abundant article in the vegetable world next to wood, and is also the most difficult to digest. All the other constituents should be combined with the starch in order to make proper bread.

Breath, Offensive—Remedy for.

From six to ten drops of the concentrated solution of chloride of soda in a wineglassful of pure spring water, taken immediately after completing the morning toilet. In some cases, the odour arising from carious teeth is combined with that of the stomach. If the mouth be well rinsed with a teaspoonful of the solution of the chloride in a tumbler of water, the bad odour of the teeth will be removed.

Breath Tainted by Onions.

Leaves of parsley, eaten with vinegar, will prevent the disagreeable consequences of eating onions.

Breeding.

Is the art of improving animals by artificial selection and treatment, and by careful selection of sires; and by special treatment almost any special qualities can be reproduced and emphasized in the progeny. This, however, always involves some corresponding loss. Horses bred for speed lose strength, sheep bred for food lose wool, etc. Scientific breeding, of course, leads to great value being put on race and genealogy.

Brick-Making—Application of the Ash and Small Coke of Gas Works to

Mix from 10 to 12 parts of the ash and cinders with 1 part of lime, after

having first taken care to break up the small pieces of coke, so as to be of no more than about five centimetres cubical size. The mass is mixed with some water, and next mixed in a pug-mill, and, after having become stiff enough, formed into bricks by a brick-making machine. The bricks are slowly but carefully dried, and are, after drying, fit for use, making very solid walls, while the material is very light and especially suited for partition walls.

Brick—To Wet When Laying.

Very few people, even builders, are aware of the advantage of wetting bricks before laying them, or, if aware of it, too often neglect to practice it. A wall 12 inches thick, built of good mortar and bricks well soaked, is stronger than one 16 inches thick built dry. The reason of this is, that if the bricks are well saturated with water, they will not abstract from the mortar the moisture necessary to its crystallization; and, on the contrary, they will unite chemically, and become as solid as a rock. On the other hand, if the bricks are put up dry they immediately take up all the moisture from the mortar, leaving it to dry and harden, and the consequence is that, when a building of this description is taken down, or tumbles down of its own accord, the mortar from it is like so much sand.

Brick Walls—Coating for.

Take of fresh Rosendale cement 3 parts, and of clean, fine sand 1 part; mix with fresh water thoroughly. This gives a gray or granite color, dark or light, according to the color of the cement. If brick color is desired, add enough Venetian red to the mixture to produce the color. If a very light color is desired, lime may be used with the cement and sand. Care must be taken to have all the ingredients well

mixed together. In applying the wash the wall must be wet with clean, fresh water, then follow immediately with the cement wash. This prevents the bricks from absorbing the water from the wash too rapidly, and gives time for the cement to set. The wash must be well stirred during the application—the admixture to be made as thick as can be applied conveniently with a whitewash brush. It is stated that this cement wash will stand for years, that it is admirably suited for brick-work, fences, etc., that it is nearly water-proof, but that it cannot be used to advantage over paint or whitewash.

Another.—Sylvester's process for repelling moisture from external walls is easy of application and very effectual! It consists in using two washes or solutions for covering the surface of brick walls—one composed of castile soap and water, and one of alum and water. The proportions are: $\frac{3}{4}$ of a lb. of soap to one gallon of water, and $\frac{1}{2}$ a lb. of alum to 4 gallons of water, both substances to be perfectly dissolved in the water before being used. The walls should be perfectly clean and dry, and the temperature of the air should not be below 50 degrees Fahrenheit, when the compositions are to be applied.

The first or soap-wash should be laid on when at boiling heat, with a flat brush, taking care not to form a froth on the brick work. This wash should remain 24 hours, so as to become dry and hard before the second or alum wash is applied, which should be applied in the same manner as the first. Four coatings will render the bricks impenetrable under a very heavy pressure.

Brick Ovens—How to Make.

A brick oven built in the old style, out of doors, entirely separated from the dwelling house, is more desirable and more safe, so far as danger from

fire is concerned, than if built by the side of the fireplace, in the house. A good brick oven for baking bread, pies, and cakes is worth all the ranges and cook-stoves that one could store in his kitchen. In such an oven every thing will be baked just right, above and below, through and through. After a foundation has been prepared, let two courses of hard bricks be laid for the bottom of the oven. Then build the mouth and part of the sides, until it is desirable to begin to draw the sides inward, when sand or mellow earth may be placed on the foundation, and the surface smoothed off and pressed down to the desired form of the oven. Now let the brick work be built over this form of sand. Let two courses of hard bricks be laid over the form with the best mortar. After the last bricks have been laid the sand may be removed. The bricks should be soaked for several hours previous to being laid, so that they will not absorb the moisture of the mortar until it has set. Such an oven will cost but a few dollars. Many people can collect a sufficient number of loose bricks and pieces around their dwellings to build a brick oven. Besides this, any intelligent man, though only half a mechanic, can build such an oven about as well as a mason.

Brick Buildings—How to Paint.

To prevent the disintegration of exterior brick surfaces, caused by moisture of the atmosphere and change of temperature, paint should be used to cover the surface; and it must be borne in mind that paints are durable mainly because of the water-proof quality of the oil in which they are used. The natural pigments—called ochres or earth-paints—do not in any degree act upon the oil; while others, as white leads and the chromates of leads, do affect the oil chemically, and impair in a measure its

acity or water-proof quality; for these reasons it follows that the natural pigments are not only the most economical, but the most durable, for painting brick houses. It has been demonstrated that the most durable paint for brick painting is a mixture of finely-ground French yellow ochre, mixed with an equal quantity, by weight, of American white zinc. The color is a soft shade of buff, most pleasant to the eye, and permanent to the last degree both in color and material. Venetian red, an artificial ochre, or red oxide of iron, is in common use; but it does not hold oil like the yellow ochre, and makes a coating far less water-proof. It is a seemingly durable paint, because the stain which it imparts to a porous surface remains long after the oil has been washed away. It cannot be used with white zinc, because of the unsuitable pink tint which it produces, and because this pigment (Venetian red) when tinted with white, becomes highly fugitive in color.

The condition of the wall is also very important in painting brick surfaces. The work should be done in dry, warm weather, when the moisture which bricks absorb during the winter and spring seasons has dried out; otherwise the paint will not be apt to adhere tenaciously, but will scale or peel off. The joints in the stone coping on brick walls require constant looking after. These should be made absolutely impervious to water by the application of a mass of soft paint-skins both on the top and edges; and when this hardens to to the point of packing, it should be removed and renewed. Mortar and cement for such purposes are altogether useless. The joint, too, between the wall and the coping underneath should be well filled with paint-skins before painting; for, no matter how water-proof the surface may be, if the water be allowed to percolate through the

joints in the coping, the integrity of the wall will be destroyed.

Britannia Metal.

Tin, 82 parts; lead, 18 parts; brass, 5 parts; antimony, 5 parts. Mix.

Another.—Brass, 1 part; antimony 4 parts; tin, 20 parts. Mix.

Another.—Plate brass, tin, bismuth, and antimony, of each equal parts. Add this mixture to melted tin until it acquires the proper color and hardness.

Britannia Metal—To Clean.

Moisten the articles to be cleaned with sweet oil; then apply a little pounded rotten stone, and polish with chamois leather and fine chalk.

Broadcloth—To Remove Stains from.

Take an ounce of pipe-clay that has been ground fine and mix it with twelve drops of alcohol and the same quantity of spirits of turpentine. Whenever you wish to remove any stains from cloth, moisten a little of this mixture with alcohol, and rub it on the spots. Let it remain till dry, then rub it off with a woolen cloth, and the spots will disappear.

Bronze—Aluminum

Resembles gold in appearance; is said to be twice as strong as the best gun-metal; as light as wrought-iron; is not easily tarnished. It is easily stamped and engraved. It is composed of ten parts of aluminum and 90 of copper. It requires to be remelted, as the first melting is brittle.

Bronze—Gold.

Pure gold bronze powder may be made as follows: Grind leaf gold with pure honey until the leaves are broken up and minutely divided. Remove this mixture from the stone by a spatula and stir up in a basin of water; the water will melt the honey and set

the gold free. Leave the basin undisturbed until the gold subsides. Pour off the water and add fresh instead, until the honey is entirely washed away, after which collect the gold on filtering pans and dry for use. A cheaper sort may be made thus: Melt one pound of tin in a crucible and pour it on one-half pound of pure mercury; when this is solid grind it into powder with seven ounces of flowers of sulphur, and one-half pound of sal ammoniac.

Bronze—Green.

Acetic acid, diluted, 4 lbs.; green verditer, 2 oz.; muriate of ammonia, 1 oz.; common salt, 2 oz.; alum, $\frac{1}{2}$ oz.; French berries, $\frac{1}{2}$ lb.; boil them together till the berries have yielded their color, and strain. Olive bronze, for brass or copper.—Nitric acid, 1 oz.; hydrochloric acid, 2 oz.; add titanium or palladium, as much as will dissolve, and add three pints of distilled water.

Bronzing Gun-Barrels.

The so-called butter of zinc used for bronzing gun-barrels is made by dissolving zinc in hydrochloric acid till no more free acid is left; which is secured by placing zinc in the acid until it ceases to be dissolved. The liquid is then evaporated until a drop taken out and placed on a piece of glass solidifies in cooling, when it is mixed with two parts of olive oil for every three parts of the liquid. The barrels must be cleaned and warmed before applying the so-called butter, which is put on with a piece of linen rag.

Bronze—For Cutting Instruments.

Copper, 100 parts; tin, 14 parts. M. Dussaussey says that the above alloy, when hardened and tempered after the manner of the ancients, will yield an edge nearly equal to that of steel. Several analyses have been made of ancient cutting instruments, whence it

appears that the proportion of tin varies from 4 to 15 per cent., which tends to prove that more depends on the exact mode of tempering the alloy, than on the relative quantities of the ingredients. Zinc and tin are inadmissible in bronze for this purpose. One or 2 per cent. of iron might nevertheless be added with advantage. The ancient bronze used for springs contained only 3 to 4 per cent. of tin.

Bronzing Fluid.

For brown: Iron filings, or scales, 1 lb.; arsenic, 1 oz.; hydrochloric acid, 1 lb.; metallic zinc, 1 oz. The article to be bronzed is to be dipped in this solution till the desired effect be produced.

Bronzing for Iron or Wood.

First, make a black paint; then put in a little chrome yellow, only sufficient to give it a dark-green shade; apply a coat of this to the article to be bronzed; when dry, give it a coat of varnish; and when the varnish is a little dry, dust on bronze by dipping a piece of velvet into the bronze and shaking it upon the varnish; then give it another coat of varnish, and when dry, all is complete.

Bronze for Ornaments to be Gilded.

Copper 82 parts; zinc 18 parts; tin 3 parts; lead 2 parts.

Another.—Copper 83 parts; zinc 17 parts; tin 1 part; lead $\frac{1}{2}$ part.

Bronzing of Medals and Ornaments of Copper, Electro-types, Etc.

Having thoroughly cleaned and polished the surface of the specimen, with a brush, apply the common crocus powder, previously made into a paste with water. When dry place it in an iron ladle, or on a common fire-shovel, over a clear fire about 1 minute; and when sufficiently cool, polish with a

plate brush. By this process a bronze similar to that on tea-urns is produced; the shade depending upon the duration of the exposure to the fire.

Another.—By substituting finely-powdered plumbago for crocus powder in the above process, a beautiful, deep, and permanent bronze appearance is produced.

Another.—Rub the medal with a solution of sulphuret of potassium, then dry. This produces the appearance of antique bronze every exactly.

Another.—Dissolve 2 oz. of verdigris and 1 oz. of sal ammoniac in 1 pint of vinegar, and dilute the mixture with water until it tastes but slightly metallic, when it must be boiled for a few minutes, and filtered for use. Copper medals, etc., previously thoroughly cleaned from grease and dirt, are to be steeped in the liquor at the boiling point, until the desired effect is produced. Care must be taken not to keep them in the solution too long. When taken out, they should be carefully washed in hot water and well dried. Gives an antique appearance.

Another.—(Chinese method.) Make a paste with 2 oz. each of verdigris and vermilion; 5 oz. each of alum and sal ammoniac, all in fine powder, and vinegar q. s.; then spread it over the surface of the copper, previously well cleaned and brightened; uniformly warm the article by the fire, and afterwards well wash and dry it, when, if the tint be not deep enough, the process may be repeated. The addition of a little blue vitriol inclines the color to a chestnut brown, and a little borax to a yellowish brown. Much employed by the Chinese for copper tea-urns.

Another.—Dissolve 1 oz. of sal ammoniac, 3 oz. cream of tartar, and 6 oz. of common salt, in 1 pint of hot water; then add 2 oz. of nitrate of copper, dissolved in $\frac{1}{2}$ pint of water; mix well and apply it repeatedly to the article,

placed in a damp situation, by means of a brush moistened therewith. Very antique.

Bronze Powder.

(Beautiful red).—Mix together sulphate of copper 100 parts; carbonate of soda 60 parts; apply heat until they unite into a mass, then cool, powder, and add copper filings 15 parts; well mix, and keep them at a white heat for twenty minutes, then cool, powder, and wash and dry.

Another.—(Gold colored). Verdigris 8 oz.; tatty powder 4 oz.; borax and nitre, of each 2 oz.; bichloride of mercury $\frac{1}{4}$ oz.; make them into a paste with oil, and fuse them together. Used in japanning as a gold color.

Another.—Dutch leaf reduced to an impalpable powder by grinding.

Another.—(Iron colored). Plumbago finely powdered.

Another.—(Silver white). Melt together 1 oz. each of bismuth and tin, then add 1 oz. of running quicksilver; cool and powder.

Bronze for Statuary.

Copper 88 parts; tin 9 parts; zinc 2 parts; lead 1 part.

Another.—Copper 82 $\frac{1}{2}$ parts; tin 5 parts; zinc 10 $\frac{1}{2}$ parts; lead 2 parts. These are very nearly the proportions in the celebrated statue of Louis XV.

Another.—Copper 90 parts; tin 9 parts; lead 1 part.

Another.—Copper 91 parts; tin 9 parts.

Bronzing—Surface.

This term is applied to the process of imparting to the surfaces of figures of wood, plaster of Paris, etc., a metallic appearance. This is done by first giving them a coat of oil or size varnish, and when this is nearly dry, applying with a dabber of cotton or a camel-hair pencil, any of the metallic bronze powders; or the powder may be placed in a little bag of muslin, and dusted

over the surface, and afterwards finished off with a wad of linen. The surface must be afterwards varnished.

Paper is bronzed by mixing the powders up with a little gum and water, and afterwards burnishing.

Iron castings may be bronzed by thorough cleaning, and subsequent immersion in a solution of sulphate of copper, when they acquire a coat of the latter metal. They must be then washed in water.

Bronze (Vinegar)—for Brass.

Vinegar, 10 gals.; blue vitriol, 3 lbs.; muriatic acid, 3 lbs.; corrosive sublimate, 4 grs.; sal ammoniac, 2 lbs.; alum, 8 oz.

Bronzed Chandeliers, Lamps, Etc.,

Should be merely dusted with a feather-brush, or with a soft cloth, as washing them will take off the bronzing.

Brooms—Use and Management of.

First, buy your broom; and in buying, choose green brush. See that the broom head will not shake in the handle; if it does, reject it; for the handle having been green when the broom was made, in sweeping the brush will keep falling out. Next, open the broom below the sewing, and see if there is any stalk. It should be all brush; for, as the stalk of broom-corn is brittle, if there are any below the twine, they will be continually breaking off.

Now, in using a broom, don't expect it to support you through the process of sweeping; that is how it gets its bent appearance or curl on the edge which some brooms have, and all the good that comes of it is, that you wear yourself, carpet and broom out quicker. We have seen a broom used so unskillfully, that one would almost think the person engaged in using it was endeavoring to change the place of the dust from the floor to the furniture. It re-

quires some science, or at least some skill, to use a broom well, as it does to do anything else.

To use a broom skilfully, the handle should incline forward and not backward, as is often the case. If the top of the broom inclines forward of the part next the floor, it will prevent much of the dust from rising into the air, and will carry it along by a gentle sliding motion toward the place where it is to be disposed of.

If, on the other hand, the handle of the broom inclines backward, the dust is sent into the air by a kind of jerk, to the great annoyance of those who occupy the room, and to the great detriment of everything the apartment contains. More than this, it wears off the threads of the carpet quicker, injures the paint more, if the room is uncarpeted, and destroys the broom sooner than if the sweeping was done in a more rational way.

A new broom sweeps clean, because it is the proper shape; keep it so by sweeping on each side alternately. Wetting it before sweeping will restore its flexibility; and if wet in boiling suds once a week, they will become very tough, will not cut a carpet, last much longer and always sweep like a new broom. Do not keep a broom near the fire; the brush is liable to break, being so dry. Do not store brooms where there are rats or mice; they like the corn. A broom that is all out of shape may be restored by soaking, then pressed in shape between something heavy.

Brown Freestone—To Imitate.

This paint is not made by mixing the ground stone nor anything in it. First, make a pretty thick oil paint of the same color as the stone to be imitated, which may be done in different ways. The basis is white-lead or zinc white, colored with umber and Mars red, or any other pigments which suit you; put it on as usual, and while yet

sticky throw common fine sand against it; this will not affect the color, and make a rough, sandy coat, imitating the surface of the stone.

Brushes—Care of.

Brushes used for applying finishing varnishes should be cared for with the utmost pains, as good work depends much upon the good condition of the brushes. A good way to keep them is to suspend them by the handles in a covered can, keeping the points at least half an inch from the bottom, and apart from each other. The can should be filled with slow drying varnish up to a line about a sixteenth of an inch above the bristles or hair. The can should then be kept in a close cupboard, or in a box fitted for the purpose.

As wiping a brush on a sharp edge of tin will gradually split the bristles, cause them to curl backward, and eventually ruin the brush, the top of the can should have a wire soldered along the edge, or the edge of tin turned over in order to prevent injury. Finishing brushes should not be cleansed in turpentine, except in extreme cases. When taken from the can prepare them for use by working them out in varnish, and before replacing them cleanse the handles and binding with turpentine.

Brushes, Artists'—to Clean.

Artists' brushes used for oil-colors should not be allowed to dry, but the paint should be squeezed out on the palette, and the brush cleaned with turpentine or oil. Some artists clean their brushes with soap rubbed into a lather.

Bugs—To Destroy in Beds.

Spirits of naphtha rubbed with a small painters' brush into every part of a bedstead is a certain way of getting rid of bugs. The mattress and binding of the bed should be examined and treated in

the same way, as they generally harbor more in those parts than in the bedstead. Five cents' worth of naphtha is sufficient for one bed.

Bugs—Poison for.

Mix proof spirit, one pint; camphor, two ounces; oil of turpentine, four ounces; corrosive sublimate, one ounce.

Bugs—To Destroy on Cucumbers.

The striped bug on cucumbers and melons may be destroyed as follows: By a strong solution of hen-house manure—say 1 peck of the manure to 1½ gals. of water; let it stand 24 hours, and sprinkle the plants freely with it after sunset.

Another.—By sifting charcoal dust over the plants; if repeated three or four times the plants will be entirely freed from the annoyance.

Another.—Plant a few kernels of buckwheat in each hill of cucumbers or melons and striped bugs will not trouble the vines.

Builders—Facts for.

One-fifth more siding and flooring is needed than the number of square feet of surface to be covered on account of the lap in siding and matching in flooring.

A cord of stone, 3 bushels of lime and 1 cubic yard of sand will lay 100 cubic feet of wall.

Twenty-one cubic feet of stone, when built into a wall is 1 perch.

Three pecks of lime and 4 bushels of sand are required to each perch of wall.

There are 20 common bricks to a cubic foot when laid, and 15 common bricks to a foot of 8-inch wall when laid.

Five courses of brick will lay 1 foot in height on a chimney; eight bricks in a course will make a flue 4 inches wide and 10 inches long.

Fifty feet of boards will build one rod of fence five boards high, first board being 10 inches wide, second 8

inches, third 7 inches, fourth 6 inches, fifth 5 inches.

Cement 1 bushel and sand 2 bushels will cover $3\frac{1}{2}$ square yards 1 inch thick, $4\frac{1}{2}$ square yards $\frac{3}{4}$ inch thick, and $6\frac{3}{4}$ square yards $\frac{1}{2}$ inch thick. One bushel of cement and one of sand will cover $2\frac{1}{4}$ square yards 1 inch thick, 3 square yards $\frac{3}{4}$ inch thick, and $4\frac{1}{2}$ square yards $\frac{1}{2}$ thick.

Two thousand shingles laid 4 inches to the weather, will cover 200 square feet of roof, and $10\frac{1}{2}$ pounds of four-penny nails will fasten them on.

Buildings (Covering)—Pew's Composition for.

Take the hardest and purest limestone (white marble is to be preferred), free from sand, clay or other matter; calcine it in a reverberatory furnace, pulverize and pass it through a sieve. One part by weight, is to be mixed with two parts of clay, well baked and similarly pulverized, conducting the whole operation with great care. This forms the first powder. The second is to be made of one part of calcined and pulverized gypsum, to which is added two parts of clay, baked and pulverized. These two powders are to be combined, and intimately incorporated, so as to form a perfect mixture. When it is to be used mix it with about a fourth part of its weight of water, added gradually, stirring the mass well the whole time, until it forms a thick paste, in which state it is to be spread like mortar upon the desired surface. It becomes in time as hard as stone, allows no moisture to penetrate, and is not cracked by heat. When well prepared it will last any length of time. When in its plastic or soft state it may be colored any desired tint.

Building—Fallacies in.

To suppose that timber growing in the woods or floating in water to-day,

can be placed in a building next week, and stay where it is put.

That if such timber be used, the walls will not crack.

That the base, window panels, casings, etc., made of such timber will not part company with the floors from one-fourth to three-fourths of an inch in less than a year, and that the builder put unseasoned lumber in the latter.

That kiln-dried lumber is as good as lumber thoroughly air-seasoned, or that the atmosphere has no influence upon it.

That a joint once tight will always remain so.

That if trimmings be put up before plastering, or on green walls, putty will not be in great demand when they dry.

That hot air from a furnace will not start and open every piece of wood-work with which it comes in contact, nine times out of ten.

That if partitions be not properly braced, bridged, and secured at angles, plastering will not crack.

That ceilings are less likely to crack cross furred.

That a pailful of lime to a cartload of sand will make mortar of any practical use, either for plastering or brick work.

That it injures mortar by mixing it some time before using it, or that if mixed one day and applied the next, it won't blister and crack.

That a cement roof, so soft that it fills the leaders in summer, or so hard it cracks in winter, will not occasion the want of new ceilings in a little time.

That a "botch" can build as good a building as a thorough mechanic.

That in all cases money is saved by contracting with the lowest bidder.

That all knowledge in relation to building is embodied in every one who signs "Architect" after his name.

That architects and builders never "lay in together," and owners never get "shorn" through that little arrangement.

That architects, as a rule, get no other commissions on buildings except the traditional "five per cent. on the cost."

That builders always carry out plans and specifications to the letter.

That there are no high-minded, conscientious, competent architects, and no honest, reliable builders; and that either class does not bear a reputation equal to that of any other business men.

That a builder does not require an extended theoretical, nor an architect as extended a practical, knowledge to be successful.

That no builder can be a successful architect, or that a practical architect cannot be a successful builder.

Bullfinches—Young.

The young require to be kept very warm, and to be fed every two hours with rape seed, soaked for several hours in cold water, afterwards scalded and strained, bruised, mixed with bread, and moistened with milk. Not more than one, two or three mouthfuls should be given at a time. See page 29.

Burning Lens, Cheap and Simple.

Take two circular discs of plate-glass, of the requisite dimensions, and place one at each end of a shallow tube; an inch long will be quite sufficient for any size; they are kept in their position very firmly by means of screw clamps, in an analogous manner to the two lenses for showing Newton's concentric colored rings. To the tube is fitted a short tube with a stop-cock attached; to the end of this tube a condensing syringe is fixed, and the cavity between the glasses filled with turpentine, varnish, bleached oil, or any other suitable

substance of a high refractive power. When the glasses have attained the requisite degree of curvature, the stop-cock may be shut, the syringe screwed off, and the fluid lens (for such in reality it is) mounted for use.

Burglar's Advice.

Sir Walter Scott was a lawyer for a short time. One of his cases was the defense of a burglar. The burglar could pay his fee only in advice. He said:

"Never have a large watch-dog out of doors, but keep a little, yelping terrier within. Secondly, put no trust in nice, clever, gimcrack locks, but pin your faith to a huge, old, heavy one with a rusty key."

Business—Habits of a Man of.

A sacred regard to the principles of justice forms the basis of every transaction, and regulates the conduct of the upright man of business. The following statements afford a bird's-eye view, as it were, of his habits, practice, and mode of procedure:—

He is strict in keeping his engagements.

He does nothing carelessly or in a hurry.

He employs nobody to do what he can easily do himself.

He keeps everything in its proper place.

He leaves nothing undone that ought to be done, and which circumstances permit him to do.

He keeps his designs and business from the view of others.

He is prompt and decisive with his customers, and does not over-trade his capital.

He prefers short credits to long ones; and cash to credit at all times, either in buying or selling; and small profits, in credit cases, with little risk to the chance of better gains with more hazard.

He is clear and explicit in all his bargains.

He leaves nothing of consequence to memory which he can and ought to commit to writing.

He keeps copies of all his important letters which he sends away, and has every letter, invoice, etc., belonging to his business, titled, classed, and put away.

He never suffers his desk to be confused by many papers lying upon it, but has a place for everything and everything in its place.

He is always at the head of his business, well knowing that if he leaves it, it will leave him.

He holds it as a maxim that he whose credit is suspected is not one to be trusted.

He is constantly examining his books, and sees through all his affairs as far as care and attention will enable him.

He balances regularly at stated times and then makes out and transmits all his accounts current to his customers, both at home and abroad.

He avoids as much as possible all sorts of accommodation in money matters and lawsuits where there is the least hazard.

He is economical in his expenditure, always living within his income.

He keeps a memorandum-book in his pocket in which he notes every particular relative to appointments, addresses and petty cash matters.

He is cautious how he becomes security for any person; and is generous when urged by motives of humanity.

He makes his business known in few words without loss of time.

He treats all with respect, confides in few, and wrongs no one.

He attends to his own business and not to his neighbor's.

Let a man act strictly to these habits—ever remembering that he hath no

profits by his pains whom Providence doth not prosper—and success will attend his efforts.

Butter—To Clarify.

Take butter, melt it in a warm bath, then let it settle, pour off the clear, and cool as quickly as possible. Butter prepared in this way will keep a long time.

Butter—Coloring.

As a rule, it is absolutely essential in the winter to color butter, in order to make it marketable, or at all attractive as an article of table use at home. There may be a possible exception to this rule, in cases where cows are fed largely upon yellow corn meal, pumpkins, carrots, etc., but this does not lessen the importance of the rule. Of the various substances used in coloring butter, we think that carrots (of the deep yellow variety) give the most natural color and the most agreeable flavor. Annatto, however, is principally used, and with most satisfactory results. Some of the most celebrated butter-makers in the country color their butter with pure annatto, giving it a rich, deep orange color. If carrots are used, take two large-sized ones, clean them thoroughly, and then with a knife scrape off the yellow exterior, leaving the white pith; soak the yellow part in boiling milk for ten or fifteen minutes. Strain boiling hot into the cream; this gives the cream the desired temperature, colors it nicely and adds to the sweetness of the butter.

Butter—To Preserve Fresh.

Melt it in a well glazed earthen pan, set in a water bath at a heat not exceeding 180 degrees Fahr., and keep it heated, skimming it from time to time, until it becomes quite transparent; then pour off the clean portion into another vessel, and cool it as quickly as possible, by placing the vessel in very cold water or ice. This is

the method employed by the Tartars who supply the Constantinople market. In this state it may be preserved perfectly fresh for six or nine months, if kept in a close vessel and a cool place.

Butter—To Keep Sweet.

Simply put it in clean jars and cover with a strong brine. This will keep pure butter a year fresh and sweet as we know by experience. It is almost equally good to put in oak casks headed tight. This is equivalent to canning fruit. The brine in the case of the jar acts as a heading, keeping the air out. But butter should be well made. Work out the buttermilk till you have only pure beads, clear 'as water; but do not work so much as to break the grain.

Butter—To Keep in Summer.

A simple mode of keeping butter in warm weather, where ice is not handy, is to invert a common flower pot over the butter, with some water in the dish in which the butter is laid. The orifice in the bottom may be corked or not. The porousness of the earthenware will keep the butter cool. It will be still cooler if the pot be wrapped with a wet cloth. Not the porosity of the earthenware, but the rapid abstraction of heat by external evaporation causes the butter to become hard.

Butter—Rancid.

Rancid butter, if boiled in water with a portion of charcoal (say a tenth part), will be entirely divested of its rancidity, and may be used for cooking purposes, although its fine flavor will not be restored for the table.

Butter (Rancid)—To Restore.

Rancid butter may be restored by melting it in a water bath with some fresh burned and coarsely powdered animal charcoal, (which has been thoroughly freed from dust by sifting,) and strain it through clean flannel. A

better and less troublesome method is to wash the butter well, first with good new milk, and next with cold spring water. Butyric acid, on the presence of which rancidity depends, is freely soluble in fresh milk.

Butter—To Restore when Rancid.

Pack the rancid butter in a firkin: and then take a barrel, put in about one bushel of charcoal, set the firkin of butter inside the barrel, and cover with good brine, letting it stand three or four weeks. This will restore it unless it be very bad.

Butterflies—To Prepare for Collections.

The first thing to be procured is the butterfly-net, which is a bag made out of two pieces of musquito-netting—blue is the best—about two feet deep, tapering towards the bottom, and fastened to a piece of stout wire bent into a circle of about a foot in diameter, the two ends of which are fastened into a light but strong stick three or four feet in length.

The next requisite is something to kill them with. Chloroform is best, but in default of that ether will do. It should be applied to the head of the butterfly with a small camel's-hair brush.

Then come the pins. They should be long and slender; real butterfly pins are best, but very fine common ones will do. Then you must have a paste-board box to put the butterflies in when you catch them to bring them home.

The cases are the next thing to be thought of. The frame of the case should be very much like a picture frame, deep enough for the pins to go in, with the back, on which the butterflies are fastened, so arranged as to come out, being held in place by little

cleats and a plate of glass fixed securely on the front. It should be made of soft wood, so that the pins can stick in easily. The size of the case depends upon the taste of the collector.

"Stretching" a butterfly is the process of keeping its wings in the natural position when at rest. You should have a board with grooves in it wide enough to admit the body of the butterfly or moth, with little pieces of cork fastened on it to stick the pins into. Then take some narrow strips of soft paper, press the wings of the

butterfly down with them as nearly in the natural position as possible, and fasten them with pins. In a few days the butterfly will be dry enough so you can take the papers off and put it in the case.

Butterflies and Moths,

However pretty, are the worst enemies one can have in a garden; a single insect of this kind may deposit eggs enough to overrun a tree with caterpillars: therefore they should be destroyed at any cost of trouble.

C

Cabbages—The Cut Worm on.

To prevent the ravages of the cut-worm take pieces of newspaper six inches square, tear a slit in one side to the center and insert the plant. Bring the slit edges together, and place a little earth or a pebble on the corners and the work is done. A platform of paper is formed around the plant, through which the worm cannot penetrate.

Cabbage Plants—Salting.

The use of salt is said to make the cabbage more crisp, of better flavor, and to keep better when salt is used, than without. After setting out the plants, and when they are damp, either after a rain or when the dew is on, take a small dish of fine salt and walk among the rows, sprinkling a little pinch of salt on the center leaves of each plant; when the leaves begin to grow repeat the salting, and when the centre leaves begin to form the head apply salt again, scattering it over the leaves; after this look them over occasionally, and if you find any plants that do not head well or appear diseased, sprinkle the salt over freely; this will save all such plants. A quart of salt is sufficient for five hundred plants.

Calendar—Jewish.

The Jewish year is reckoned by lunar months. The year 5654 = Sept. 11, 1893; the year 5655 = Oct. 1, 1894. The Jewish day begins at sunset.

Calendar—Mohammedan.

Moslems reckon the years from A. D. 622 (July 16), which is called the year of the Hejira, or Flight of Mohammed from Mecca to Medina (A. H. = Anno Hejira = Year of the flight). It is a common practice for readers in this country to add 622 to a given Moslem year (A. H.), in order to ascertain the corresponding year of the Christian era; but this is entirely wrong, as the Moslem year is reckoned by lunar months. For example, A. H. 10 was not A. D. 632, but began on April 9, 631; A. H. 169 was not A. D. 791 (169 + 622 = 791), but began on July 14, 795 A. D. Thus calculating by lunar months in the course of years the great Moslem fasts and festivals occur at different seasons: the Ramadan fast, for instance sometimes occurs in sweltering midsummer, at other times in midwinter. The Moslem year 1311 began 13th July, 1893; A. H. 131 = 23d July, 1894; and the follow-

ing is a table of the relative years A. H. and A. D. to the end of the last century.

A. H.	A. D.
1313	1895, June 22
1314	1896, June 10
1315	1897, May 31
1316	1898, May 20
1317	1899, May 10
1318	1900, April 29

Calicoes—To Wash.

Black calicoes should be washed in water in which potatoes have been boiled, or starch water made by having two or three potatoes scraped in it; or pour boiling water on wheat bran, strain it, and when lukewarm wash them in it, using no soap. Before wetting any calico, rub soap on the grease spots—hard soap, or soft soap a year old. Alum is good to set the color of green; salt put in the rinsing water of blue, black or green calico, will prevent the colors running into each other. Some washerwomen infuse eight gills of salt in four quarts of boiling water, and put the calicoes in while hot, leaving them until cold, which process is to render the colors permanent, so they will not fade by subsequent washing. Cotton goods (except pure white) should never remain in water a moment longer than necessary, and should be dried in the shade.

Calico—To Prevent Fading.

Put three gills of salt into four quarts of hot water, put in the calico, while the water is hot, allowing it to remain in until the water becomes cold.

Calves—Chalk for.

When an animal is found licking his fellow, it is proof that uneasiness is present in the stomach, and the licking of his neighbor is a habit contracted by instinct, with a view of removing the unpleasantness. Unfortunately instinct is not at all times sufficient to

avoid dangerous practices, and, if we take for granted that the stomach is at all times fully charged with acid matter, we shall without hesitation find a remedy. It is only necessary to place within their reach shallow troughs, in which is kept a supply of common chalk. If an animal has a superabundance of acid secretion, it will most certainly swallow some of the chalk, which will as certainly neutralize the excess of acid. If an animal has not acid in excess, and partakes of the chalk, it will do no harm. It is often too late to administer remedies to young stock and the placing of chalk within their reach cannot be made too early.

Calves—Care of.

To raise good calves—those that will make good cows—they must be well fed from their birth, as it is impossible to stint a calf in food till 1 year—or more—old, and then bring the animal into as good condition, in all respects, as could be done if the animal had been well fed. Allow the calf to suck until the milk is fit to use. To teach it to drink, take the calf from the cow at the time mentioned, and fasten it with about six feet of rope in a box stall; then milk the cow, and standing off just far enough for the calf to reach you, wet one finger with milk, put it in its mouth, and gently lower your hand until it is immersed in the milk in the pail; let it continue to have the finger until it has received enough. This is lesson No. 1. The second lesson is given in this wise: Dip the finger in the milk and place it in its mouth and when you have brought its mouth in contact with the feed, gradually withdraw your finger and the thing is done. It may be necessary to repeat this the third time. The secret is that you may stand just far enough so that the calf can just reach the pail of feed, as the rope will then be taut, and hence he cannot reach you, or

butt over and spill his milk or feed. It may be remarked in this connection that calves will thrive better on milk that is not rich in butter than on what is commonly called very rich milk. The nutritive elements of milk reside chiefly in the casein. If you have a cow that gives particularly rich milk, and one that gives a quality poorer in butter, it is better in every way to feed the calf on the milk of the latter. The calf will thrive better, and you get more butter from the milk of the first cow.

Calves—Lice and Vermin on.

The best applications to destroy lice, nits, etc., is a thorough application of alcohol or kerosene oil. Neither will do the animals any harm, and they are much better than ointment of any kind.

Calves—To Cure Scours in.

Take 1 pint of red oak acorns, break the shells, and steep thoroughly in 3 pints of water, and you will have one quart of the tea. Give one pint of the same, warm, for the first dose, and the remainder 12 hours after, if necessary. I never knew more than two doses required to effect a cure.

Canaries—Hints in Choosing.

In buying canaries, the birds which seem moderately shy are generally the best; an inexperienced person is too apt to be attracted by a very quiet manner; the birds seem so tame that they are bought quite eagerly, but unhappily they are apt to die soon after; the too great quietness being caused by illness. A real good bird will make no end of fuss, pretending to be a vast deal shyer than it really is, hopping from perch to perch, twisting its head about, and having, in fact an infinity of pretty airs and graces.

Bird dealers, again, always recommend the birds which sing loudly, and this to many persons is not at all desirable. The lower the tone the pret-

tier and sweeter many would think the song. Birds with long, straight, and tapering bodies are the best singers.

Canaries—To Distinguish Sex of.

The male has generally deeper and brighter colors, a head rather larger and longish, a longer body, and a more elegant form. There is a feather under the beak, of the shape of a bean, placed lower than the rest, and the temples and circle around the eyes are of a deeper yellow than the other parts of the body. The throat of the male vibrates while singing, this never happens with the hen. If the bird be observed when it is singing, and if it be a cock, you will perceive the throat heaving with this vibratory pulse-like motion, a peculiarity which is scarcely perceptible in the hen.

Canaries—Care of.

Especial care must be taken to keep the canary thoroughly clean. For this purpose the cage should be strewed every morning with clean sand, or rather, fine gravel, for small pebbles are absolutely essential to life and health in cage birds fresh water must be given every day, both for drinking and bathing; the latter being in a shallow vessel; and during the moulting season a small bit of iron should be put into the water for drinking. The food of a canary should consist principally of summer rape seed, that is, of those small brown rape-seeds which are obtained from plants sown in the spring, and which ripen during the summer; large and black rape-seeds, on the contrary, are produced by such plants as are sown in autumn, and reaped in spring. A little chickweed in spring, lettuce-leaves in summer, and endive in autumn, with slices of sweet apple in winter, may be safely given, but bread and sugar ought to be generally avoided. Occasionally also, a few poppy or canary-seeds, and a small

quantity of bruised hemp-seed may be added, but the last very sparingly. Cleanliness, simple food, and fresh but not cold air, are essential to the well-being of a canary. During the winter, the cage should never be hung in a room without a fire, but even then, when the air is mild, and the sun shines brightly, the little prisoner will be refreshed by having the window open. The cage should never be less than eight inches in diameter, and a foot high, with perches at different heights.

Another.—Place the cage so that no draft of air can strike the bird; give nothing to healthy birds but canary and rape-seed mixed, water, cuttle fish bone, and gravel on the floor of the cage; also occasionally, a little water for bathing; the room should not be overheated; when moulting (shedding feathers) avoid drafts of air; give plenty of rape-seed slightly moistened; a little hard-boiled egg and cracker grated fine are excellent; by observing these simple directions, birds may be kept in fine condition for years. Bad seed kills most of the birds that die; to which it might be added, that canary birds are not only fond of, but benefited by having often, a leaf of cabbage, piece of apple or other green food, which serves to keep down the tendency to fever and prevents constipation. Birds usually bathe each day as regularly as any one washes the face, and with apparent benefit too. When birds are sick and inclined not to eat well, remove all the food for a day, and then only give soaked bread, from which most of the moisture has been squeezed.

Canaries—Insects on.

Parasites are among the most deadly enemies of canary birds, goldfinches and other household pets. Many people have observed a bird in a state of excitement and anxiety, plucking at himself continually, his feathers stand-

ing all wrong. In vain is his food changed, and in vain is another saucer of clean water always kept in his cage, and all that kindness can suggest for the little prisoner done, but still all is of no use: he is no better, because the cause of his wretchedness has not been found out. If the owner of a pet in such difficulties will take down the cage and look up to the roof, there will most likely be seen a mass of stuff looking as much like red rust as anything, and thence comes the cause of the poor bird's uneasiness. The red rust consists of myriads of parasites infesting the bird and for which water is no remedy. By producing a lighted candle, and holding it under every particle of the top of the cage till all chance of anything being left alive is gone, the remedy is complete. The pet will soon brighten up again after his "house-cleaning" and will, in his cheerful and delightful way, thank his master or mistress for this important assistance.

Candles.

Candles are made of various materials, but the first operation, in all cases, is the preparation of the wicks. The best candle wicks are made of cotton rovings, imported from Turkey in skeins. Four or more of these, according to the intended thickness of the wick, are wound on a reel, from which they are again run off, and cut of the proper lengths. They are then dipped into melted tallow, and after rubbing with the hands, are placed straight and allowed to harden. They are next arranged upon the branches ready for dipping. For mould and other candles that do not undergo the process of dipping, this last operation is omitted. In some cases the wicks are formed by twisting or plaiting the cotton together, or winding it round wires, which are withdrawn after the candles are made, thus leaving the wicks hollow; this was the method patented by Gay Lussac,

for his stearine candles. In some instances, the cotton is steeped in metallic solutions. The object in all these processes is to produce a wick that will consume itself, and thus prevent the necessity of snuffing. Great care is taken to select a cotton that will yield the least possible quantity of ashes, or non-volatile matter, after burning.

Candle-Stick (Silver-Plated)— To Clean.

Silver-plated candlesticks should be cleaned by pouring on the tops boiling hot water, to remove the grease; when wiped dry, use whiting, rubbing them until bright. This will not injure the plated ware.

Cane-Bottom Chairs—To Clean.

Turn the chair bottom upwards, and with hot water and a sponge wash the cane-work well, so that it may become completely soaked. Should it be very dirty you must add soap. Let it dry in the open air, or in a place where there is a thorough draught, and it will become as tight and as firm as when new, provided none of the strips are broken.

Canvas—To Prepare for Oil Painting.

Stretch your canvas on a board with tacks and paint it simply with white lead and raw linseed oil; put it on thin, evenly and smoothly; if you do not want a white ground to paint on, you may mix in a very little ochre, which makes it yellowish, or a trace of lamp-black, which gives a bluish gray. When dry and not smooth enough, you may rub it down with pumice-stone and water, and give it a second very fine and thin coat. This, however, is seldom necessary. Then stretch on your frame. We warn you against other recipes, and above all against the advice of using glue first to fill the pores of the canvas; your painting will, in this case, be in great danger to eventually peel off

in patches by exposure to dampness, or even by damp weather only. The pores of the canvas must be filled with oil, which is water-proof, and not with glue. The latter is only good for economy, to save a little oil. We have always followed this simple advice given here, and have never had any cause to abandon it.

Canvas—To Make Water Proof.

White lead 4 pounds, spirits of turpentine 1 fourth part, white vitriol half ounce, sugar of lead half ounce, and boiled oil to make it thin; apply with a paint brush to the canvas or linen, which must be well washed to take out the stiffening; well dried and stretched tight on a frame while being painted.

Caoutchouc for Printing-Ink Rollers.

In order to give to vulcanized caoutchouc all that softness which is requisite, for instance, for printing-ink, M. Mouton reduces ordinary vulcanized caoutchouc to powder, places it in suitably-shaped vessels, and submits it a second time to the temperature required for vulcanization. By this means it is rendered soft and smooth, has entirely lost its usual harshness and is fit for various uses—among these the making of durable printing-ink rollers.

Cap—An Impromptu Traveling.

Take your pocket handkerchief, and laying it out the full square, double down one-third over the other part. Then raise the whole and turn it over, so that the third folded down now shall be underneath. Take hold of one of the folded corners and draw its point towards the center; then do the same with the other, as in making a cocked-hat, or a boat, of paper. Then take hold of the two remaining corners, and, twisting the hem of the handker-

chief, continue to roll it until it meets the double corners brought to the center and catches them up a little. Lift the whole and you will perceive the form of a cap, which, when applied to the head, will cover the head and ears, and, being tied under the chin, will not come off. Very little practice will enable you to regulate the size of the folds so as to fit the head.

Carat,

A weight of 3.17 troy grains, used by jewelers in weighing pearls and precious stones. The term is also used to express the proportionate fineness of gold, which is divided in 24 parts, each carat being one twenty-fourth of pure metal.

Carmine.

Take cochineal, 1 pound; carbonate of potash, $3\frac{1}{2}$ drachms; water, 7 gallons. Simmer for a little time then remove the copper from the fire and scatter powdered alum, 8 drachms, over the surface; let it stand fifteen minutes, until clear, then decant and put the solution into a clean copper, heat it and add isinglass, $3\frac{1}{2}$ drachms, previously dissolved in two quarts of water and strained. Then bring it to a boil, and when a coagulum is formed take it from the fire and stir it with a clean spatula; let it rest for twenty minutes and the carmine will be found at the bottom of the liquid. Decant, and drain the carmine upon a piece of fine linen.

The remaining solution will make fine carminated lake.

Carmine (Common)—To Improve.

Take carmine, one part; water of ammonia to dissolve. Digest in the sun until the ammonia is saturated with the coloring part of the carmine, then precipitate the color with alcohol and acetic acid. Wash the precipitate carefully with alcohol and dry it.

Carmine—German.

Take cochineal, 1 pound; water, 7 gallons. Boil for five minutes, then add alum, 1 ounce. Boil for five minutes more, filter and set aside the decoction in glass or porcelain vessels for three days, then decant the liquor and dry the carmine in the shade. The remaining liquor will still deposit color of an inferior quality, by standing.

Carpets—To Choose.

The carpet ought to assimilate with the style of the paperhangings, but the quality of the material must depend on the capability of the purchaser's pocket. In carpets, as in many other things, the dearest articles are generally the cheapest in the end. In illustration of this we may state that the carpet in our dining-room cost \$1.25 a yard, and although it has been in daily use for four years, it looks as well as ever. For dining and drawing-rooms, Brussels carpets are the best. If the rooms are small choose small patterns with few colors or a pattern formed of shades of the same color as the ground, such as a green carpet with mosses or small ferns in various shades of green, or a carpet with an indistinct pattern of ribbons or arabesques of a small size. When there is nothing very decided to attract the eye, the defects of wear are not so obvious. Stair carpets are also best of Brussels make; crimson wears longest; they must be of a pattern that will admit of being turned upside down, as it is a good plan frequently to change the position of the carpet, that the edge of each step may not always come in the same spot, which would soon wear the fabric. A small gay pattern of crimsons or oak colors wears best; avoid blues or lilacs, or shades of stone color; the two former fade quickly and the latter always looks dirty.

Carpets—Beating.

Always beat on the wrong side first; and then more gently on the right side. Beware of using sticks with sharp points, which may tear the carpet.

Carpets—Choosing.

As it is extremely desirable that it should look as clean as possible, avoid buying carpeting that has much white in it. Even a very small portion of white interspersed through the pattern will in a short time give a dirty appearance to the whole.

Carpets in which all the Colors are Light

Never have a clean, bright effect, from the want of dark tints to contrast and set off the light ones. For a similar reason, carpets whose colors are all of what artists call middle tint (neither dark nor light) cannot fail to look dull and dingy, even when quite new.

Carpet—To be Really Beautiful

And in good taste, there should be, as in a picture, a judicious disposal of light and shadow, with a gradation of very bright and of very dark tints; some almost white, and others almost or quite black.

Carpets—The Most Truly Chaste,

Rich, and elegant carpets are those which are of one color only, the pattern, if pattern it may be called, being formed by a judicious arrangement of every variety of shade of this color. For instance, a Brussels carpet entirely red; the pattern formed by shades or tints varying from the deepest crimson (almost a black), to the palest pink (almost a white). Also one of green only, shaded from the darkest bottle-green in some parts of the pattern, to the lightest pea-green in others. Or one in which there is no color but brown, in all its

various gradations, some of the shades being nearly black, others of a light buff.

Carpets—How to Lay.

Cover the floor with thick brown paper, which is sold in large rolls for the purpose; have the carpet properly fitted, and, on the binding of the edges, sew at regular distances small brass rings in such a manner that when the carpet is laid they will not appear beyond the edges. Round the sides of the room drive medium-sized, brass-headed nails, at the same distances from each other as the rings are sewed on the carpet; when ready, begin at the top of the room and hook the rings over the brass-headed nails, which must be driven into the floor far enough to admit of the rings catching a firm hold. When the top is hooked on, stretch the carpet to the opposite side and hook it on, then fasten the sides in like manner. This is much less troublesome and is more economical than nailing down carpets.

Carpets (Stair)—To Make Last.

Slips of paper should always be placed over the edges of the stairs, under the carpet. This will diminish the friction between the carpet and the boards underneath it. The strips should be in length within an inch or two of the width of the carpet, and four or five inches in breadth, as convenient. This simple expedient will preserve the carpet half as long again as it would last without the strips.

Carpets—To Sweep.

Sweeping carpets too often wears them out rapidly. It is obvious to any one that a brisk, daily brushing over the whole surface must wear away and carry off more woolly particles than the occasional stepping of feet during the day without the rubbing and scraping given by the broom. To allow sand and grit to accumulate on the surface,

and to become ground into the fibres by the pressure of sole leather is, however, worse than sweeping. A handful or so of salt sprinkled on the carpet will carry the dust along with it and make the carpet look bright and clean. A very dusty carpet may be cleaned by setting a pail of cold water out by the door, wet the broom in it, knock it to get off all the drops, sweep a yard or so, then wash the broom as before and sweep again, being careful to shake all the drops off the broom, and not sweep far at a time. If done with care it will clean a carpet very nicely and you will be surprised at the quantity of dirt in the water. The water may need changing once or twice, if the carpet is very dirty. Snow sprinkled over a carpet and swept off before it has time to melt and dissolve, is also nice for renovating a soiled carpet. Moistened Indian meal is used with good effect by some housekeepers.

In libraries, cabinets, etc., where dust might badly injure or wholly spoil the specimens and books, it is better to procure a patent carpet-sweeper, merely using the broom or brush to clean out the corners and sides.

Carpets—To Clean.

Carpets may be cleaned as follows: Take them up and shake and beat them, so as to render them perfectly free from dust. Have the floor thoroughly scoured and dry, and nail the carpet firmly down upon it. If still much soiled, it may be cleaned in the following manner: Take a pailful of clean, cold water, and put into it about 3 gills of ox-gall. Take another pail of clean cold water only. Now rub with a soft scrubbing-brush some of the ox-gall water on the carpet, which will raise a lather. When a convenient sized portion is done wash the lather off with a clean linen cloth dipped in the clean water. Let this water be

changed frequently. When all the lather has disappeared, rub the part with a clean, dry cloth. After all is done open the window to allow the carpet to dry. A carpet treated in this manner will be greatly refreshed in color—particularly the greens. In nailing down a carpet after the floor has been washed, be certain that the floor is quite dry, or the nails will rust and injure the carpet. Fuller's earth is used for cleaning carpets, and weak solutions of alum or soda are used for reviving the colors. The crumb of a hot wheaten loaf rubbed over a carpet has been found effective.

Carpets—To Remove Grease from.

Mix a little soap into a gallon of warm soft water, then add half an ounce of borax; wash the part well with clean cloth, and the grease or dirty spot will soon disappear.

Another.—Cover the grease spot with whiting, and let it remain until it becomes saturated with the grease; then scrape it off and cover it with another coat of whiting, and if this does not remove the grease, repeat the application. Three coats of whiting will, in most cases, remove the grease, when it should be brushed off with a clothes brush. If oil has been spilt on a carpet, that part of the carpet must be loosened and the floor beneath it well scrubbed with warm soap and water and fuller's earth; otherwise the grease will continue yet to come through.

Another.—To remove spots of spermaceti, scrape off as much as you can with a knife, then lay on a thin, soft, white paper upon the spots, and press it with a warm iron. By repeating this you may draw out the spermaceti. Afterward rub the cloth where the spots have been with some very soft brownish paper.

Carpets—To Prevent Moths in.

To prevent moths from injuring carpets, buy half a pound of gum camphor, and that will save all the carpets in your house for a year, by placing a few little crumbs under the edges of the carpets without moving them.

Carpets—Loose.

If the corner of a carpet becomes loose and prevents the door opening, or trips every one up that enters the room, nail it down at once. A dog's-eared carpet marks the sloven as well as the dog's-eared book. An English gentleman, traveling some years ago in Ireland, took a hammer and tacks with him, because he found dog's-eared carpets at all the inns where he rested. At one of these inns he tacked down the carpet, which, as usual, was loose near the door, and soon afterwards rang for his dinner. While the carpet was loose the door could not be opened without a hard push; so when the waiter came up he just unlatched the door, and then going back a couple of yards, he rushed against it, as his habit was, with a sudden spring, to force it open. But the wrinkles of the carpet were no longer there to stop it, and not meeting with the expected resistance, the unfortunate waiter fell full length into the room. It had never entered his head that so much trouble might be saved by means of a hammer and half-a-dozen tacks, until his fall taught him that makeshift is a very unprofitable kind of shift.

Carpets—Sweeping Turkey.

In the case of heavy-piled Turkey or Axminster carpets, they should always be brushed in the direction the pile goes. By doing this the carpet will last twice as long; but if swept the other way the dust will be driven into the carpet.

Carpets—Sweeping Stair.

These should never be swept down with a long broom, but always with a short-handled brush, a dust-pan being held closely under each step of the stairs during the operation of sweeping.

Carrots—To Cultivate.

Select a good, rich clover sod, deep loamy soil, or even gravelly, well drained; spread on evenly fifteen to twenty cart loads of good manure to the acre. In the spring, after the ground is well settled and dry, with settled warm weather, plow the ground thoroughly, eight inches deep, or more, depending upon its previous management. In plowing it ought not to be plowed more than an inch deeper than before, unless the deeper soil has been ameliorated and is richer than the upper soil. A soil having a close, stiff subsoil, unless thoroughly subsoiled, will grow poor crops of roots generally. After plowing, harrow so as to make the soil perfectly fine, and even this is essential to the ready drilling and germinating of the seed; now drill in the seed, putting the drills two feet apart. The seed should be fresh and of the previous year's growth. It is best to commence the culture as soon as the rows can be distinguished. Have a cultivator of light frame, with eight teeth, similar to the coulter of a plow, only narrower, and about ten inches long, and a shovel for the front. With this and a horse go through, cutting the soil deep close to the rows without covering the plants; this will save the greatest part of the work usually done with the hoe, and do it much better. When the carrots are well growing and about the size of the small end of a clay pipe stem, take a narrow hoe and cut them into hills, thinning them to four or five inches apart. The after culture is performed with the cultivator, going through once in about

two weeks. If any weeds come in the rows, pull them out by hand—but it is not probable that weeds will trouble if the soil be selected as above, and well prepared before planting, and the culture as directed. To harvest, it is best to take a sharp hoe with a short handle and clip off the tops close to the crown, gather them and then plow around the plat a deep furrow, as close to the roots as you can go; now take them by hand and draw them out, and throw four or more of the rows into one. Carrots should be taken out when the ground is dry, and lie a few hours to dry, and then be hauled to the root cellar to be stored, and if in tight bins and covered with sand they will keep better. They should be left in the ground to ripen as long as safe without freezing, as they improve till freezing weather, and keep fresher than if gathered before fully matured; be careful not to let them remain too long to get frosted, for a light freeze injures the carrot more than other roots.

Case-Hardening.

The operation of giving a surface of steel to pieces of iron, by which they are rendered capable of receiving great external hardness, while the interior portion retains all the toughness of good wrought iron. Iron tools, fire-irons, fenders, keys, etc., are usually case-hardened.

The goods finished in every respect but polishing, are put into an iron box, and covered with animal or vegetable charcoal, and cemented at a red heat, for a period varying with the size and description of the articles operated on.

Another.—Cow's horn or hoof is to be baked or thoroughly dried, and pulverized. To this add an equal quantity of bay salt; mix them with stale chamber-lye, or white wine vinegar; cover the iron with this mixture, and bed it in the same in loam, or inclose it

in an iron box; lay it then on the hearth of the forge to dry and harden; then put it into the fire, and blow till the lump has a blood red heat, and no higher, lest the mixture be burnt too much. Take the iron out, and immerse it in water to harden.

Another.—The iron, previously polished and finished, is to be heated to a bright red and rubbed or sprinkled over with prussiate of potash. As soon as the prussiate appears to be decomposed and dissipated, plunge the article into cold water.

Another.—Make a paste with a concentrated solution of prussiate of potash and loam, and coat the iron therewith; then expose it to a strong red heat, and when it has fallen to a dull red, plunge the whole into cold water.

Casks—Wax Putty for Leaky Bungs, etc.

Spirits of turpentine, 2 pounds; tallow, 4 pounds; yellow wax, 8 pounds; solid turpentine, 12 pounds. Melt the wax and solid turpentine together over a slow fire; then add the tallow. When melted, remove far from the fire; then stir in the spirits of turpentine, and let it cool.

Casks (Water)—To Clean.

Scour the inside well out with water and sand and afterwards apply a quantity of charcoal dust; another and a better method is to rinse them with a strong solution of oil of vitrol and water, which entirely deprives them of their foulness.

Casks—To Sweeten.

Mix half a pint of vitriol with a quart of water, pour it into the barrel, and roll it about; next day add one pint of chalk, and roll again. Bung down for three or four days, then rinse well with hot water.

Cash Versus Credit.

If you would get rich, don't deal in bill books. Credit is the "Tempter in

a new shape." Buy goods on trust, and you will purchase a thousand articles that Cash would never have dreamed of. A quarter in the hand looks larger than ten quarters seen through the perspective of a three months' bill. Cash is practical, while Credit takes horribly to taste and romance. Let Cash buy a dinner, and you will have a beef-steak flanked with onions. Send Credit to market, and he will return with eight pairs of woodcocks and a peck of mushrooms. Credit believes in diamond pins and champagne suppers. Cash is more easily satisfied. Give him three meals a day, and he doesn't care much if two of them are made up of roasted potatoes and a little salt. Cash is a good adviser, while Credit is a good fellow to be on visiting terms with. If you want double chins and contentment, do business with Cash.

Castings—Soldering.

First dip the castings in alcohol, after which, sprinkle muriate of ammonia (sal ammoniac) over the surface to be soldered. Then hold the casting over a charcoal fire till the sal ammoniac begins to smoke, then dip into melted tin (not solder). This prepares the metal for soldering, which can then be done in the ordinary way.

Cast-Iron—To Soften for Drilling.

Heat to a cherry red, having it lie level in the fire, then with a pair of cold tongs put on a piece of brimstone, a little less in size than you wish the hole to be when drilled, and it softens entirely through the piece; let it lie in the fire until a little cool, when it is ready to drill.

Cast-Iron—To Weld.

Take of good clear white sand, 3 parts; refined solton, 1 part; fosterine, 1 part; rock salt, 1 part; mix all together. Take two pieces of cast-iron,

heat them in a moderate charcoal-fire, occasionally taking them out while heating, and dipping them into the composition, until they are of a proper heat to weld; then at once lay them on the anvil, and gently hammer them together, and, if done carefully by one who understands welding iron, you will have them nicely welded together. One man prefers heating the metal, then cooling it in the water of common beans, and heat it again for welding.

Cast-Steel—English.

The finest of steel, called English cast-steel, is prepared by breaking to pieces blistered steel, and then melting it in a crucible with a flux composed of carbonaceous and vitrifiable ingredients. The vitrifiable ingredient is used only inasmuch as it is a fusible body, which flows over the surface of the metal in the crucibles, and prevents the access of the oxygen of the atmosphere. Broken glass is sometimes used for this purpose.

When thoroughly fused it is cast into ingots, which by gentle heating and careful hammering, are tilted into bars. By this process the steel becomes more highly carbonized in proportion to the quantity of flux, and in consequence is more brittle and fusible than before. Hence it surpasses all other steel in uniformity of texture, hardness, and closeness of grain, and is the material employed in all the finest articles of English cutlery.

Cast-Steel—To Restore when Burnt.

Take $1\frac{1}{2}$ pounds borax, $\frac{1}{2}$ pound sal ammoniac, $\frac{1}{4}$ pound prussiate of potash, 1 ounce rosin. Pound the above fine, add a gill each of water and alcohol. Put in an iron kettle, and boil until it becomes a paste. Do not boil too long, or it will become hard on cooling.

Cast-Steel and Iron—To Make Edge-tools from.

This method consists in fixing a clean piece of wrought iron, brought to a welding heat, in the center of a mold, and then pouring in melted steel, so as entirely to envelop the iron; and then forging the mass into the shape required.

Castor Oil — Mechanical Uses of.

It is not as universally known as it deserves to be, that castor oil is as useful in the trades as it is in medicine. It is much better to soften and redeem old leather than any other oil known. When boots and shoes are greased with it, the oil will not at all interfere with the polishing afterwards, as in the case with lard, olive, or any other kind of oil. In Harrisburg, the old leather hose of some of the fire companies were greased with it, and found to become almost as soft and flexible as new leather. Leather belts for transmitting motion in machinery will usually last three to five years, according to the wear and tear they are exposed to; when greased with castor oil they will last ten years or more, as they always remain flexible and do not crack. Besides this advantage, castor oil prevents slipping, so that a belt three inches wide, impregnated with it, will be equal to a belt four and a half inches wide without castor oil. It is necessary however, to wait twenty-four hours till the oil has disappeared from the surface and penetrated the leather, otherwise the freshly greased surface will cause slipping. Another advantage of castor oil is that rats and other vermin detest anything impregnated with castor oil, and will not touch it.

Casting in Plaster.

Obtain some fine plaster of good color, and pass it through a muslin sieve, to remove any coarser particles which may be present. By mixing

gum-arabic with the water intended to be used in the plaster, not only will the plaster be rendered very hard when it sets, but a beautiful gloss will be given to the surface. Care must be taken to drop the plaster powder gradually into the water, and to permit the bubbles to rise before the mixture is stirred; otherwise it will become lumpy. The plaster should be of the consistence of the yelk of an egg, and of course used immediately. If the medal intended to be copied is a valuable one, with a smooth surface, it will be advisable not to oil it, as, in cleaning the oil off, the polish may be injured; but if the surface be rough, there will be no remedy, and the oil must afterwards be removed by dabbing the surface of the metal gently with a soft cloth. A rim of thin lead, brass, copper, or even oiled paper, is then tied around the medal, and some liquid plaster, in the first place, stippled over its surface with a soft brush, to prevent the formation of air-bubbles, as well as to insure its insertion into the most minute crevices; after which the plaster is poured upon the surface to the thickness of half an inch, or an inch if a large medal. To cause the separation of the mold from the metal, all we have to do is to immerse it in water, when it is readily removed; otherwise the mold is sure to be broken. To obtain a plaster cast from this mold, we must oil it with warm boiled linseed oil, and allow it several days to dry. Whenever the mold is used, it must be well oiled, otherwise the surface of the castings will be destroyed. The best olive oil must be used, or the color of the plaster will be injured.

Casting in Wax.

The mold is first made in plaster; but before being used is placed in warm water, of which it is allowed to absorb as much as it will take—oil not being used in this process. The surface must

then be allowed to dry, or the wax would not adhere closely. Pure wax is too greasy for the purpose, and bladder flake-white is therefore mixed with it. The quantity can not be stated, but the addition of too much gives wax the appearance of plaster, by taking away its richness. If the wax is often remelted, its color is injured. In order to obtain a gray marble color, a marble powder, procurable of any statuary, is mixed with the wax, which not only gives a beautiful appearance to it, but renders it more durable. The wax is poured into the mold, and allowed to flow over its surface, and by moistening the plaster mold in water when the wax has become hard, the cast is easily removed. Wax models may be fastened by means of boiled linseed oil and flake-white, and also by a combination of beeswax and resin.

Casting an Egg in Wax.

Every large object to be imitated in wax should be cast hollow; and therefore, though the transparent lightness required in the imitation of fruits is not requisite in an artificial egg, the egg may be cast upon the same principle as a piece of fruit, in the following manner:

The two pieces of the plaster-of-Paris mold must be soaked in hot water for ten minutes.

The wax should in the meantime be very slowly melted in a small tin saucepan, with a spout to it, care being taken not to allow it to boil, or it will be discolored. As to the quantity of wax to be melted, the following is a general rule:—A lump, the size of the object to be imitated, placed in the saucepan, should be sufficient for casting twice, at least.

As soon as the wax is melted thoroughly, place the saucepan on the top of the stove, and taking the parts of the mold from the hot water, remove the moisture from their surfaces by press-

ing them gently with a handkerchief or soft cloth. The mold must not be wiped, but only pressed. If the water has not been hot enough, or if the drying is not performed quickly, the mold will be too cold, and the wax will congeal too rapidly, and settle in ridges and streaks; on the other hand, if the wax has been made too hot, it will adhere to the mold, and refuse to come out entire.

Having laid the two halves of the mold so that there can be no mistake in fitting the one in its exact place quickly on the other, pour from the saucepan into one of the half molds nearly as much wax as will fill the hollow made by the model (egg), quickly fit the other half on the top of it, squeeze the two pieces tightly together in the hand, and, still holding them thus, turn them over in every possible position, so that the wax which is slowly congealing in the internal hollow of the mould may be of equal thickness in all parts. Having continued this process at least two minutes, the hands (still holding and turning the mould) may be immersed in cold water to accelerate the cooling process. The perfect congealment of the wax may be known after a little experience by the absence of the sound of fluid on shaking the mold.

Another.—As soon as the mold is completely cooled, the halves may be separated carefully, the upper being lifted straight up from the under. and if the operation has been properly managed, a waxen egg will be turned out of the mould.

The egg will only require trimming, that is, removing the ridge which marks the line at which the halves of the mold joined, and polishing out the scratches or inequalities left by the knife with a piece of soft rag, wet with spirits of turpentine or spirits of wine.

Coloring the Wax.

While the wax is yet on the stove, and in a fluid state, stir into it a little flake-white, in powder, and continue to stir the mixture while it is being poured into the half mold. It will be found that unless the fixing and shaking of the molds is managed quickly, the coloring matter will settle on the side of the half into which the mixture is poured; a little care in manipulation is therefore again requisite. The coloring of the wax is a matter which comes easily enough by experiment. Oranges, lemons, large gooseberries, small cucumbers, etc., etc., are excellent objects for practice.

Casting in Sulphur.

This is a very permanent mode; but as a mold it can only be used for plaster, for hot wax or sulphur would injure its surface. When sulphur is heated to the temperature suitable for forming casts it becomes nearly black, and has, therefore, to be covered with vermilion in the proportion of one ounce of vermilion to three of sulphur. The surface of the mold, however, need only be coated with this expensive mixture, and common sulphur added in any quantity. You must use wood to stir the sulphur, as iron will take away its color. The sulphur will take fire in melting unless it is properly stirred, and at first will become thick and viscid; but by continuing the application of heat it will again assume a perfectly liquid form.

Casting in Glue.

If a medal is so much sunk and engraved that you cannot get a plaster cast off, a mold may be obtained by pouring glue upon it. In this manner a bunch of grapes can be taken in the natural state, and by cutting the glue down the center, the grapes can be extracted, and the molds used to pro-

duce a representation of the original in plaster. Isinglass may be similarly used, but it is first mixed with flake-white in the state of powder.

Casting in Bread Paste.

Take the inside of a penny roll and work it well up with vermilion, the longer the better, until it becomes viscid and tough; it is then to be worked well into the mold. After having obtained the mold, it must be fastened down upon a piece of wood by wetting it, so as to prevent it from warping as it dries. After it has been thoroughly dried, you may oil it, and then obtain as many casts as you please from it in plaster, wax, or sulphur. By means of bread paste, a traveler may always take a mold of any small object of interest he meets with on his journey, and thus a proper knowledge of its mode of use becomes invaluable.

Caterpillars—To Destroy.

Boil together a quantity of rue, wormwood, and any cheap tobacco (equal parts), in common water. The liquid should be very strong. Sprinkle it on the leaves and young branches every morning and evening during the time fruit is ripening.

Cats—Care of.

The cat is subject to several diseases; but, as a general rule, is seldom seriously ill. The best rule to keep the animal in good health is to have it fed with regularity, kept clean, and furnished with plenty of pure water. In respect to the ailments of puss, "prevention is easier than cure," as it is in many matters of higher moment. The cat ought not to be overfed. If she appears out of sorts, a little brimstone in milk will frequently be found useful.

Cats Catching Chickens — To Cure.

When a cat is seen to catch chickens, tie one of them around her neck, and

make her wear it for two or three days. Fasten it securely, for she will make incredible efforts to get rid of it. Be firm for that time, and the cat is permanently cured; she will never again touch a chick.

Cattle — Feeding and Care of.

The two great points in the feeding of cattle are regularity and a particular care to the weaker individuals. On this last account there ought to be plenty of rack or trough room, that too many may not feed together; in which very common case the weaker are not only trampled down by the stronger, but they are worried, cowed and spiritless; than which there cannot be a more unfavorable state for thrift; besides, they are ever compelled to shift with the worst of the fodder. To prevent this the weaker animals should be kept and fed apart. The barn or stable should be kept warm in winter. During the winter months, whenever the sun shines, turn them into the yard, and they will soon find the sunny side, and begin to stretch themselves and show increased comfort. A good plan is to feed them meal or roots early in the morning, without any hay, and turn them out a little after sunrise, and then feed hay, either in the yard or at the adjoining stack, putting them back in the stalls as early as 4 p. m., stormy or extreme cold weather excepted, when they should be kept comfortably housed most of the time. In fattening, the farmer should remember that it does not pay to feed grain to a poor creature—one that does not take on flesh rapidly. This kind of stock should at once be disposed of for what it will bring. The next important point is to feed plentifully, without stint, and to do this regularly and not too often, as the stock will eat and lie down and ruminate.

Cattle—Catarrh in.

Malignant catarrh, or Coryza, has been confounded with the Cattle Plague or Rinderpest, in some points of which there is a resemblance. Symptoms—In first stage a shivering fit may be observed; dullness, head held low, ears pendulous, the visible membranes of which are of a bluish-red color and dry; eyes closed and swollen, tears flow, and light cannot be endured; muzzle dry and hot, saliva discharged abundantly; painful cough, pulse frequent and full, heart's action feeble, bowels costive, faeces black and hard, but after a short time diarrhea ensues; urine scanty, offensive, and of a high color; is thirsty, but eats nothing. The second stage occurs within 18 or 24 hours from the appearance of the first signs of the disturbance, and is denoted by a very marked change in the character of the discharges. The membranes of the eyes and nose now furnish a purulent secretion, having an admixture of blood and ichor, which irritates and makes sore the skin over which it flows. Within the sinuses of the head large accumulations of pus occur, and when the bones over them are tapped by the fingers (percussed) a dull sound is emitted. If the mouth is opened, red patches will be observed, which in some places will have fallen off, exposing a foul ulcer beneath, and the membranes are now of a deeper purple hue, and the breath fetid. The animal is lame, and experiences great pain when urine or dung is discharged. Pregnant animals almost sure to cast their young (abort). In the third stage great prostration is evident. Sloughing of membranes extensive, and probably the horns and hoofs have come off. The pulse has become imperceptible, and convulsions ensue, with general coldness. The thermometer indicates a rapid and

unusual fall, 90 to 95 degrees Fahrenheit being the amount of heat that can be registered at the rectum. Sometimes ulceration of the cornea is effected before death, and the contents of the eye-ball discharged, giving rise to a great amount of additional pain. Duration—From 4 to 9 or 11 days. Treatment—Remove the animal from the pasture, and place it in a comfortable, cool place, with good bedding. Cooling or evaporating lotions, water, etc., should be constantly applied to the head. Injections of warm water should be thrown up. The following laxative drink may be administered.

Take of Epsom salts, 12 oz.; ground ginger, 2 oz.; treacle, $\frac{1}{2}$ lb., and warm ale, $1\frac{1}{2}$ pts. Mix and give to a 2-year old beast; $\frac{3}{4}$ for a 1-year old; $\frac{1}{2}$ at six months, and $\frac{1}{4}$ for lesser animals, as calves, sheep, and large pigs. 2 or 4 drs. of nitre in water may be given 3 or 4 times a day. Solutions of carbolic acid, or sulphurous acid gas and chlorine in water, should be used for the purpose of dressing the wounds and cleansing the points of discharge, etc. It may also be necessary to open the sinuses and sponge them, using the same solutions.

Cattle Choked—To Relieve.

In choking, the accumulation of gas (chiefly sulphuretted hydrogen) is the cause of the animal's death. This gas can be decomposed by the forcing of chloride of lime down the animal's throat. A strong solution of salt and water will also effect the same object. Another mode of relief is to force the animal to jump over the bars of a gate or fence, as high as she will jump, and when she touches ground on the opposite side the obstruction will be ejected. Another plan is to take a loaded gun, slip up by the side of the animal, place the muzzle directly between the horns, about three inches forward of them, and discharge the piece. A sudden

spring of the animal backward results, and the obstruction is removed. And yet another is to use 4 or 5 feet of $\frac{3}{4}$ rubber hose, and push the obstruction down.

Cattle—Film on Eyes of.

To remove it apply clean lard, warm or cold, whichever way it can be got into the eye best. Its application will cause no pain, and should be applied until the film is removed. Another method is to apply powdered sugar.

Cattle—Foot and Mouth Disease in.

On the first indication of this disease, the affected cattle should at once be separated from the healthy, so as to secure against the spreading of the disorder. Next make a mixture composed of 5 lbs. of alum to 12 gals. of soft water, 4 qts. of salt, and a small quantity of tar, and with a sponge or rag wash the inside of the mouths thoroughly of those not affected. Next bathe the lower portion of the legs with suds formed from carbolic disinfecting soap, to which is added 1 qt. of salt to about one gal. suds. Repeat the bathing and washing once a day for seven days. The affected animals should be treated in the same manner, with the exception of washing the inside of the mouth twice a day—once with the mixture given above, and once with wormwood steeped in vinegar. To the division of the hoof apply suds at first, and afterwards apply a mixture of pitch and tar. The buildings should be thoroughly disinfected by carbolic acid, chloride of lime, and other disinfectants, and if the cattle themselves be treated with the fumes of burning sulphur, it will help to prevent further infection, for which purpose drop small pieces of brimstone upon live coals, contained in suitable metallie vessels (so as to avoid all risks of communicating fire), and al-

low the fumes to mingle with the air of the lean-to, or building containing the cattle, and to penetrate the coats of the beasts, and to be inhaled to such extent as can be borne by the attendant without serious discomfort. Let this be regularly repeated, daily or twice daily while the danger continues, using from 1 to 2 ounces each time, according to the extent of the danger. Finally, the animals should be kept in a dry, comfortable place, suitably ventilated, and receive good nursing, including the utmost cleanliness. No bleeding must be allowed, nor should active purgatives be given them. If unable to take their usual food, their strength should be sustained by giving mashies of coarse-ground wheat, with bran or other similar diet.

Cattle—Hoof Rot in.

For a cure, take 1 teacupful of sharp cider vinegar, $1\frac{1}{2}$ tablespoonfuls of copperas, $1\frac{1}{2}$ tablespoonfuls of salt. Dissolve gradually on the hot stove, but do not let it boil. When cool, apply it to the affected limb and hoof, and also swab out the mouth of the animal with the mixture. 2 or 3 applications generally effect a cure. This preparation can be used in the foot and mouth disease in connection with the above treatment.

Cattle—Hollow Horn, or Horn Ail.

This disorder usually attacks cattle in the spring, after a severe winter; likewise those that are in very poor flesh, or those that have been overworked and exposed to severe storms, or reduced by any other diseases, are predisposed to take it. The symptoms are as follows: Eyes dull, discharging yellow matter, dizziness, loss of appetite, shaking of the head, bloody urine, coldness of the horns, stupidity and great debility. The remedies that are recommended are as numerous as

they are contradictory. One authority advises boring gimlet holes in the horns 3 inches from the head, while another advises not to bore at all; one advises to bleed in the neck in the same manner as a horse is bled, while another deprecates bleeding. Another advises to put a mixture of strong vinegar ($\frac{1}{2}$ a teaspoonful), fine salt and ground black pepper (of each a tablespoonful), and after allowing it to stand over night, to put a tablespoonful in each ear of the animal affected. Another advises the cutting of the hair off the top of the head, and then pour or rub strong spirits of camphor thereon. And still another advises the pouring of the camphor in the ears. Where so many remedies and so much advice is offered, it is safe to say that not much is known of the real nature of the disease.

Cattle—Hoven or Bloat in.

A certain remedy for this is to take a pail of water, and pour it from a jug forward of the hip bones, rubbing it on with the hands. It will be found that the bloat will at once commence to go down, and by applying two or three more pailfuls complete restoration will result.

Cattle—To Destroy Lice on.

Camphor dissolved in spirits is an effectual remedy.

Another.—One part lard and two parts coal oil, melted together and applied, will kill lice without fail.

Another.—A strong brine, thickened with soft soap, will also kill.

Another.—Two or three applications of kerosene oil, applied by carding the animal, and dipping the teeth of the card in the oil, is convenient, harmless, and effectual.

Another.—Feeding onions to the animal will make the lice travel in from ten to fifteen hours.

Cattle—Mange in.

This is caused by improper treatment of the animal through the winter, rendering it debilitated and unable to support the change when the grass comes on. Nature, overloaded, will relieve herself by this eruption on the skin, which, when once introduced, will quickly spread through an entire dairy. The treatment required is proper attention to cleanliness, food, drink, and plenty of sunlight.

Cattle Plague.

Chloride of copper is now extensively used in Germany as a preventive against the cattle plague. The mode of administering the specific is as follows: A solution is first made by dissolving $\frac{1}{4}$ of an oz. of the green crystallized salts in spirits of wine. In this solution a pad of cotton is soaked for a little while, and is then laid on a plate and set on fire in the centre of the stable, the animals' heads being turned toward the flame, so as to make them breathe the fumes. The operation is performed morning and evening, and a spirit lamp filled with the solution left burning in the stable every night. The liquid is also administered internally, with the addition of $\frac{1}{2}$ an oz. of chloroform for the above quantity, a teaspoonful being put into the animal's drink three times a day.

**Cattle, Snake-Bitten—
Remedy for.**

Cattle or horses are usually bitten in the feet. When this is the case, all that is necessary to do is to drive them into a mud-hole and keep them there for a few hours; if upon the nose, bind the mud upon the place in such a manner as not to interfere with their breathing.

Cattle—Sore Mouth in.

Take a weak solution of carbolic acid—say one to five drops to the ounce of water—washing the mouth every few hours, allowing a little to be

swallowed, and following this with mild tonics and food that will not irritate the mouth.

Cattle—Warts on.

To remove warts from cattle, mix equal parts of blue vitriol, lard and honey, and anoint them once in three or five days; they will be removed without making a sore.

Another—Wash with a strong lye, made of pearl ash and water, three times a day.

Another—Or make two or three applications of lunar caustic.

Cattle—Wens on.

Wens cannot be cured except by a surgeon's removing them altogether with a scalpel, followed by the application of a healing ointment.

Cattle, Age of—How to Tell.

The age of the ox or cow is told chiefly by the teeth, and less perfectly by the horns. The temporary teeth are in part through at birth, and all the incisors are through in twenty days; the first, second, and third pairs of molars are through in thirty days; the teeth have grown large enough to touch each other by the sixth month; they gradually wear and fall in eighteen months; the fourth permanent molars are through at the fourth month; the fifth at the fifteenth month; the sixth at two years. The temporary teeth begin to fall at twenty-one months, and are entirely replaced by the thirty-ninth to the forty-fifth month. The development is quite complete at from five to six years. At that time the border of the incisors has been worn away a little below the level of the grinders. At eight years the first grinders are beginning to wear, and are on a level with the incisors. At eight years the wear of the first grinders is very apparent. At ten or eleven years, used surfaces of the teeth bear a square mark, surrounded by a white line; and this is perceived on

all the teeth by the twelfth year; between the twelfth and the fourteenth year, this mark takes on a round form. The rings on the horns are less useful as guides. At ten or twelve months the first ring appears; at twenty months to two years the second; at thirty to thirty-two months the third; at forty to forty-six months the fourth; at fifty-four to sixty months the fifth ring, and so on. But, at the fifth year, the three first rings are indistinguishable, and at the eighth year all the rings; beside, the dealers file the horns.

Cellar—Air of the.

To purify the air of the cellar and destroy parasitical growth, place some rolled brimstone in a pan, set fire to it, close the doors and windows as tightly as possible for two to three hours; repeat every three months.

Cellars—To Keep from Freezing.

A novel plan for this purpose is to take either old newspapers or coarse brown paper, and with a strong size paste them four or five thicknesses down thoroughly to the stone walls of the cellar and to the bare joists overhead, leaving an air space between them and the floor. Before pasting, it will be better to sweep down the walls and joists thoroughly. It will not be necessary to press the paper down into all the depressions of the wall; every air space is an additional defence against the cold. If this plan is adopted and carefully executed the cellar will be frost-proof, even if it is left unbanked.

Cements and Glues—Manner of Applying.

Quite as much depends upon the manner in which a cement is applied as upon the cement itself. The best cement that was ever compounded would prove entirely worthless if improperly applied. Good common glue will unite two pieces of wood so firmly that the fibres will part from each other rather

than from the cementing material. Two pieces of glass can be so joined that they will part anywhere rather than on the line of union. Glass can be united to metal, or metal to metal, or stone to stone, and all so strongly that the joint will certainly not be the weakest part of the resulting mass. The rules to be observed to effect this are: The cement itself is to be brought into intimate contact with the surface to be united. The obstacles to this junction are air and dirt. The former is universally present; the latter is due to accident or carelessness. Unless the adhering layer of air is displaced, the cement cannot adhere to the surface to which it is applied, simply because it cannot come in contact with it. The most efficient agent in displacing air is heat. Therefore, the two surfaces to be joined are to be thoroughly heated before the cement is applied.

Another—Use as little cement as possible. When the surfaces are separated by a large mass of cement, we have to depend upon the strength of the cement itself, and not upon its adhesion to the surfaces which it is used to join; and in general, cements are comparatively brittle.

Cement—Armenian.

The jewelers of Turkey, who are mostly Armenians, have a singular method of ornamenting watch-cases, etc., with diamonds and other precious stones, by gluing or cementing them on. The stone is set in silver or gold, and the lower part of the metal made flat, or to correspond with the part to which it is to be fixed; it is then gently warmed and the glue is applied, which is so very strong that the parts thus cemented never separate. This glue will unite strongly pieces of glass and china, and even polished steel, and may be applied to a variety of useful purposes. The following is the recipe:

Dissolve 5 or 6 bits of gum mastic, each the size of a large pea, in as much rectified spirits of wine as will suffice to render it liquid; and in another vessel, dissolve as much isinglass, previously a little softened in water (though none of the water must be used) in French brandy or good rum, as will make a two-ounce vial of very strong glue, adding two small bits of gum galbanum or ammoniacum, which must be rubbed or ground till they are dissolved. Then mix the whole with a sufficient heat. Keep the glue in a vial closely stopped, and every time it is to be used set the vial in boiling water.

Cement—Alabaster.

Finely powdered plaster-of-Paris, made into a cream with water.

Another.—Melt yellow resin, or equal parts of yellow resin and beeswax; then stir in half as much finely powdered plaster-of-Paris. The first is used to join and fit together pieces of alabaster or marble, or to mend broken plaster figures. The second is used to join alabaster, marble, porphyry and any similar substances that will bear being heated.

Cement—Architectural.

Reduce paper to a smooth paste by boiling it in water; then add an equal weight each of sifted whiting and good size; boil to a proper consistence.

Another.—Paper paste and size, equal parts; finely powdered plaster-of-Paris to make it of a proper consistence. Use it as soon as mixed. Can be used in making architectural busts, statues, columns, etc. It is very light, receives a good polish, but will not stand the weather.

Cement—Bruyer's Water.

Mix three gallons of clay with one gallon of slaked lime, and expose it to a full red heat for three hours.

Cement—Building.

This is made by exposing a mixture of clay or loam, broken pottery, flints, silicious sand, or broken bottle-glass, with wood ashes, to a considerable heat in a furnace, until it becomes partially vitrified. It must then be ground to a fine powder, sifted, and mixed with one third its weight of quicklime, also in fine powder, after which it must be packed (tight) in casks to preserve it from the air and moisture. For use it is mixed up with water and applied like Roman cement.

Cement—Botany Bay.

Yellow gum and brick-dust, equal parts, melted together. It is used to cement coarse earthenware, etc.

Cement for Aquaria.

Many persons have attempted to make an aquarium, but have failed on account of the extreme difficulty in making the tank resist the action of water for any length of time. The following is a recipe for a cement that can be relied upon; it is perfectly free from anything that can injure the animals or plants; it sticks to glass, metal, wood, stone, etc., and hardens under water. A hundred different experiments with cements have been tried, but there is nothing like it. It is the same as that used in constructing the tanks of the Zoölogical gardens, London, and is almost unknown in this country: 1 part by measure (say a gill) of litharge; 1 gill of plaster-of-Paris; 1 gill of dry, white sand; $\frac{1}{2}$ of a gill of finely powdered rosin. Sift and keep corked tight until required for use, when it is made into a putty by mixing in boiled oil (linseed) with a little patent dryer added. Never use it after it has been mixed (that is with the oil) over fifteen hours. This cement can be used for marine as well as for fresh water aquaria, as it resists the action of salt

water. The tank can be used immediately, but it is best to give it three or four hours to dry.

Cement for Attaching Metal To Glass.

Take 2 oz. of a solution of glue, and mix it with 1 oz. of linseed-oil varnish, and $\frac{1}{2}$ oz. of pure turpentine; these articles are then boiled together in a close vessel. The two bodies should be clamped and held together for about two days after they are united, to allow the cement to become dry. The elamps may then be removed.

Cement for Attaching Brass Work to Lamps.

A cement particularly adapted for attaching the brass work to petroleum lamps, is made by boiling 3 parts resin with one of caustic soda and 5 of water. This composition is then mixed with half its weight of plaster-of-Paris, and sets in from half to three-quarters of an hour. It is said to be of great adhesive power, not permeable to petroleum, a low conductor of heat, and but superficially attacked by hot water. Zinc white, white lead, or precipitated chalk may be substituted for plaster, but they harden more slowly.

Cement for Broken Marble.

Take gum arabic, 1 lb.; make into a thick mucilage; add to it powdered plaster-of-Paris, $1\frac{1}{2}$ lbs.; sifted quicklime, 5 oz.; mix well; heat the marble and apply the mixture.

Cement for Brick Walls.

Cement for the outside of brick walls, to imitate stone, is made of clean sand, 90 parts; litharge, 5 parts; plaster-of-Paris, 5 parts, moistened with boiled linseed oil. The bricks should receive two or three coats of oil before the cement is applied.

Cement for China, Glass, Crockery, Metals and Wood.

An excellent cement for mending china may be made as follows: Take

the white of an egg and a little flour, which make into a light paste; clear the parts to be joined from all dust and dirt; spread some of the paste on each piece and press them together; while wet, wipe off the exuding portions, both inside and out; then let it remain until quite dry.

Cement for Mending Broken China, Glass, Etc.

Take 1 lb. of white shellac, pulverized, 2 oz. clean gum mastic; put these into a bottle, and then add $\frac{1}{2}$ lb. pure sulphuric ether. Let it stand $\frac{1}{2}$ hour, and then add $\frac{1}{2}$ gal. 90 per cent. alcohol. Shake occasionally till it is dissolved. Heat the edges of the article to be mended, and apply the cement with a pencil brush; hold the article together until the cement cools. This makes a transparent cement.

Cement, an Indian—For Glass and Metals.

Dissolve five or six pieces of gum mastic, each about the size of a large pea, in just as much spirit as will render it liquid. Soften some isinglass by steeping it in water; having dried it, dissolve as much of it in good brandy as will fill a two ounce phial, and when it is to be used add two small bits of gum ammoniacum, previously rubbing them until they are dissolved. Mix the two solutions; keep in a close phial, and when it is to be used set the phial in boiling water.

Another.—Take a thick mucilage of gum arabic and stir into it plaster-of-Paris—the broken images are best—made very fine, to form a thick paste, and apply to the edges with a brush, and press firmly together and confine there two or three days. I have pulled over thirty pounds with a wine-glass, the stem of which had been broken and mended with the cement.

Another.—Dissolve 1 oz. common salt in 1 quart of water; bring to a boil,

and put in $1\frac{1}{4}$ lbs. gum shellac. When it shall be dissolved pour into cold water and work like wax. Make into small sticks. This will make crockery as good as new.

Another.—Steep Russian isinglass 24 hours in white brandy; gently boil and stir the mixture until it is well compounded, and a drop of it, cooled, will become a very thick jelly; then strain it through a linen cloth, and cork it up closely. A gentle heat will dissolve it into a colorless fluid. Broken dishes united with it will break elsewhere, rather than separate in the old fracture. To apply it, rub the edges, place them together, and hold them two or three minutes.

Another.—A durable cement is made by burning oyster shells, and pulverizing the lime from them very fine; then mixing it with white of egg to a thick paste, and applying it to the china or glass, and securing the pieces together until dry.

Another.—Take 4 lbs. of white glue, $1\frac{1}{2}$ lbs. of dry white lead, $\frac{1}{2}$ lb. of isinglass, 1 gal. of soft water, 1 quart of alcohol, and $\frac{1}{2}$ pint of white varnish. Dissolve the glue and isinglass in the water by gentle heat, if preferred; stir in the lead, put the alcohol in the varnish and mix the whole together.

Another.—A cement that will mend marble, china, and ornamental ware, is made by taking water 1 gal., nice glue 3 lbs., white lead, 4 oz., alcohol, 1 quart. Mix. Directions—If it is cold weather, warm the bottle until the cement is dissolved; then with the finger or a brush rub it on the broken parts (both edges), put together, and retain in their places until dry.

Another.—A cement withstanding both heat and moisture is simply pure white lead or zinc white, ground in oil, and used very thick. It is excellent for mending broken crockeryware, but it takes a very long time to harden suf-

ficiently. The best plan is to place the mended object in some store-room, and not to look after it for several weeks, or even months. After that time it will be so firmly united that if ever again broken it will not part on the line of the former fracture.

Cement for Covering the Fronts of Houses.

Fifty parts, by measure, of clean, dry sand; 50 of limestone (not burned) reduced to grains like sand or marble dust, and 10 parts of red lead, mixed with as much boiled linseed oil as will make it slightly moist. The bricks to receive it should be covered with three coats of boiled oil, laid on with a brush, and suffered to dry before the mastic is put on. It is laid on with a trowel like plaster but it is not so moist. It becomes hard as stone in a few months. Care must be exercised not to use too much oil.

Cement—Coppersmith's.

Bullock's blood thickened with finely powdered quicklime. It is used to secure the edges and rivets of copper boilers, and to mend leaks from joints, etc. It must be used as soon as mixed, as it rapidly gets hard. It is extremely cheap and very durable, and is suited for many purposes where a strong cement is required. It is frequently called blood cement.

Cement for Cloth or Belting.

Take ale 1 pt., best Russian isinglass 2 oz.; put them into a common glue kettle and boil until the isinglass is dissolved; then add 4 oz. of the best common glue, and dissolve it with the other; then slowly add $1\frac{1}{2}$ oz. of boiled linseed oil, stirring all the time while adding, and until well mixed. When cold it will resemble India-rubber. When you wish to use this, dissolve what you need in a suitable quantity of ale to have the consistence of thick glue. It is applicable

for earthenware, china, glass, or leather for harness; bands for machinery; cloth belts for cracker machines for bakers, etc. If for leather shave off as for sewing, apply the cement with a brush while hot, laying a weight to keep each joint firmly for six to ten hours, or over night.

Cement for Cutlers.

A material for fastening knives or forks into their handles, when they have become loosened by use, is a much needed article. The best cement for this purpose consists of 1 lb. of colophony, (purchasable at the druggists,) and 8 oz. of sulphur, which are to be melted together, and either kept in bars or reduced to powder. One part of the powder is to be mixed with half a part of iron filings, fine sand, or brick-dust, and the cavity of the handle is then to be filled with this mixture. The stem of the knife or fork is then to be heated and inserted into the cavity; and when cold it will be found fixed in its place with great tenacity.

Another.—Black resin 4 lbs.; bees-wax 1 lb.; melt them, and add 1 lb. of finely powdered and well-dried brick-dust.

Cement for Cisterns.

Take equal parts of red and white lead, and wash them into a paste with boiled linseed oil. It hardens slowly, but afterwards acquires a flinty hardness. To be applied it should be made thin, and the places thoroughly smeared with it.

Cement for Engineers.

Mix ground white lead with as much powdered red lead as will make it the consistency of putty.

Another.—Mix equal weights of red and white lead with boiled linseed oil to a proper consistency. This is employed by engineers and others to make metallic joints. A washer of hemp, yarn or canvas, smeared with the ce-

ment, is placed in the joint, which is then "brought home" or screwed up tight. It dries as hard as a stone.

Cement for Fastening Chamois and other Leather to Iron and Steel.

Dr. Carl W. Heinischen, of Dresden, gives the following recipe for the above purpose: "Spread over the metal a thin hot solution of good glue; soak your leather with a warm solution of gall-nuts before placing on the metal. If fastened in this way it is impossible to separate the leather from the metal without tearing it."

Cement for Fastening to Metals.

Any fibrous material can be stuck to metal, whether iron or other metal, by an amalgam composed of glue dissolved in vinegar, hot, and one-third of its volume of white pitch pine, also hot.

Cement for Fastening Rubber to Wood and Metal.

As rubber plates and rings are nowadays almost exclusively used for making connections between steam and other pipes and other apparatus very much annoyance is often experienced by the impossibility or imperfectness of an air-tight connection. This is obviated entirely by employing a cement which fastens alike well to the rubber and to the metal or wood. Such a cement is prepared by a solution of shellac in ammonia. This is best made by soaking pulverized gum shellac in 10 times its weight of strong ammonia, when a slimy mass is obtained, which, in from three to four weeks, will become liquid without the use of hot water. This softens the rubber, and becomes after volatilization of the ammonia, hard and impermeable to gases and fluids.

Cement for Gas-Fitters.

Mix together resin $4\frac{1}{2}$ parts; wax 1 part, and Venetian red 3 parts,

Cement for Gas Retorts.

A new cement especially adapted to the retorts of gas works, is very warmly recommended in a German gaslight journal. It consists simply of finely powdered barytes and soluble water-glass; or the barytes and a solution of borax. The joints are to be coated several times with this cement by means of a brush. The addition of two-thirds of clay improves the cement, and the retorts will then stand a red heat very well. Instead of the water-glass a solution of borax may be used, or even finely powdered white glass.

Cement for Gutters and Leaky Places.

A good cement for gutters and leaky places may be made of boiled paint-skins, if while hot and thick, a portion of sand and fine lime be sifted in. It must be used while hot, and when dry it will be as hard as iron, and as durable.

Cement for Iron.

Take 16 parts of steel filings; 3 parts sal ammoniac, and two parts flowers of sulphur. This mixture can be preserved any length of time in dry packages. In order to lute with it, add to one part of the mixture 12 parts of iron filings, and enough water, previously acidulated with sulphuric acid, to form a paste. This is now ready to be applied to the perfectly clean surfaces of the metal to be luted. For iron castings and small holes, the pulverized iron (*ferrum pulveratum* of apothecaries) can be substituted for iron filings.

Another.—To 4 or 5 parts of clay, thoroughly dried and pulverized, add 2 parts of iron filings free from oxide, 1 part of peroxide of manganese, half of sea salt, and half of borax. Mingle thoroughly, and render as fine as possible; then reduce to a thick paste with the necessary quantity of water, mixing

thoroughly well. It must be used immediately. After application it should be exposed to warmth, gradually increasing to almost a white heat. This cement is very hard, and presents complete resistance alike to red heat and boiling water.

Another.—Sixty parts of pulverized cast iron turnings are mixed with 2 parts sal ammoniac and 1 part flowers of sulphur; and water is added, till a paste is formed. A cement is thus obtained which spontaneously becomes hot, evolving sulphuretted hydrogen, and becoming soon very hard. Of course it must be prepared immediately before using.

Another.—Another cement is to mix equal parts of sifted peroxide of manganese and well pulverized zinc white; add a sufficient quantity of commercial soluble glass to form a thin paste. This mixture, when used immediately, forms a cement quite equal in hardness and resistance to that obtained in any other way.

Cement for Iron, Mother-of-Pearl, Etc.

Dissolve 1 part of isinglass and 2 of white glue in 30 of water; strain and evaporate to 6 parts. Add one-thirtieth part of gum mastic, dissolved in $\frac{1}{2}$ a part of alcohol, and 1 part of white zinc. When required for use, warm and shake up.

Cement for Iron Boilers.

This cement is used to stop the cracks and leaks in iron boilers, stoves, etc. Dried clay in powder, 6 lbs.; iron filings, 1 lb. Make a paste with boiled linseed oil.

Another.—Take 2 oz. of muriate of ammonia, 1 oz. of flour of sulphur and 16 oz. of cast-iron filings or turnings; mix them well in a mortar, and keep the powder dry. When the cement is wanted, take 1 part of this and 20 parts of clean iron filings or borings, grind

them together in a mortar, mix them with water to a proper consistence and apply them between the joints.

Cement for Leather.

To 10 parts bisulphide carbon and 1 parts spirits turpentine, add enough gutta-percha to make a tough, thickly-flowing liquid. The surfaces to be joined must be perfectly free from grease, which is accomplished by laying a cloth upon them and applying a hot iron for a time. The coat is applied to both surfaces, and pressure made till the joints are dry

Cement for Leather Belting.

Take of common glue and American isinglass equal parts; place them in a boiler and add water sufficient to just cover the whole. Let it soak ten hours, then bring the whole to a boiling heat, and add pure tannin until the whole becomes ropy or appears like the white of an egg. Apply it warm. Buff the grain off the leather where it is to be cemented; rub the joined surfaces solidly together, let it dry a few hours, and it is ready for practical use; and, if properly put together, it will not need riveting, as the cement is nearly of the same nature as the leather itself.

Cement for Leather and Cloth.

An adhesive material for uniting the parts of boots and shoes, and for the seams of articles of clothing, may be made thus: Take 1 lb. of gutta-percha; 4 oz. of India rubber; 2 oz. of pitch; 1 oz. of shellac; 2 oz. of oil. The ingredients are to be melted together, and used hot.

Cement for Mahogany.

Melt 4 parts of beeswax or shellac with 1 of Indian red, adding as much yellow ochre as is requisite to give color. This cement will be found most suitable for stopping holes and rents in mahogany furniture.

Cement for Preserving Leaks About Chimneys.

Dry sand, 1 part; ashes, 2 parts; clay, dried and pulverized, 3 parts. All to be pulverized and mixed into a paste with linseed oil. Apply it when soft, and when it becomes hard, water will have no effect upon it.

Cement for Roofs of Houses.

Slake stone lime in a large tub or barrel with boiling water, covering the tub or barrel to keep in the steam. When thus slaked, pass 6 quarts through a fine sieve; it will then be in a state of fine flour. To this add one quart rock salt and 1 gallon water. Boil the mixture and skim it clean. To every 5 gallons of this carefully skimmed mixture, add $\frac{3}{4}$ of a pound of potash, and 4 quarts of fine sand or wood ashes sifted. Both of the above will admit of any coloring you please. It looks better than paint, and is as durable as slate.

Cement for Rooms.

M. Sarel, of Paris, has made an invention which is pronounced better than plaster-of-Paris for coating the walls of rooms. It is used thus: A coat of oxide of zinc, mixed with size, made up like a wash, is first laid on the wall, ceiling or wainscot, and over that a coat of chloride of zinc applied, prepared in the same way as the first wash. The oxide and chloride effect an immediate combination, and form a kind of cement, smooth and polished as glass, and possessing the advantages of oil paint without its disadvantages of smell.

Cement for Steam Pipes.

White lead, mixed, 2 parts; red lead, dry, 1 part; grind or otherwise mix them to a consistence of thin putty; apply interposed layers with one or two thicknesses of canvas or gauze wire, as the necessity of the case may be.

Another.—(Stephenson's.) If two parts of litharge are mixed with 1 part dry-slaked lime and 1 part fine sand, well rubbed together, and mixed with such a quantity of hot linseed oil varnish as to form a pasty mass, an excellent cement for iron steam-pipes is obtained, which soon sets hard. Consequently, it must be prepared fresh every time, and applied when still hot.

Glues or Cements.

Very much the same thing that was said of cements can be said of glues.

The term "cement" includes all those substances employed for the purpose of causing the adhesion of two or more bodies, whether originally separated or divided by an accidental fracture. As the various substances that may require cementing differ very much in texture, etc., a number of cements possessed of very different properties are required, because a cement that answers admirably under one set of circumstances may be perfectly useless in others. The general principles upon which the success or failure of cementing usually depends are:—The different parts of a solid are held together by an attraction between their several particles, which is termed the attraction of cohesion. This attraction acts only when the particles are in the closest possible contact; even air must not be between them. If, after breaking any substance, we could bring the particles into as close a contact as before, and perfectly exclude the air, they would reunite, and be as strongly connected as ever. But in general this is impossible; small particles of grit and dust get between them; the film of interposed air cannot be removed; and thus, however firmly we press the edges of a broken cup together, it remains cracked china still. The cohesion between the particles of the cement is very much less than the ad-

hesion of the cement to other bodies; and if torn apart, the connected joint gives way, not by the loosening of the adhesion, but by the layer of cement splitting down the centre. Hence the important rule that the less cement in a joint the stronger it is. To unite broken substances with a thick cement is disadvantageous, the object being to bring the surfaces as closely together as possible. The general principles that ought always to be borne in mind having been mentioned, the manufacture and uses of some of the more useful cements may be described.

Mouth Glue.

The very useful preparation sold under this title is merely a thin cake of soluble glue, which, when moistened with the tongue, furnishes a ready means of uniting papers, etc. It is made by dissolving one pound of fine glue or gelatine in water, and adding half a pound of brown sugar, boiling the whole until it is sufficiently thick to become solid on cooling; it is then poured into molds, or on a slab slightly greased, and cut into the required shape when cool.

Liquid Glue.

The liquid glue of the shops is made by dissolving shellac in water, by boiling it along with borax, which possesses the peculiar property of causing the solution of the resinous lac. This preparation is convenient from its cheapness and freedom from smell; but it gives way if exposed to long-continued damp, which that made with naphtha resists.

To Melt Glue.

This should always be done in a glue-pot or double vessel, to prevent its being burned, which injures it very materially. It is difficult to heat the glue in the inner vessel to the boiling point; this, however, can be obviated by employing in the outer vessel some liquid

which boils at a higher temperature than pure water, such as a saturated solution of salt (made by adding one-third as much salt as water). This boils at 224° Fahr., or 12° above the heat of boiling water, and enables the glue in the inner vessel to be heated to a much higher temperature than when pure water is employed. If a saturated solution of nitre is used, the temperature rises still higher.

Marine Glue.

In point of strength, all ordinary cements yield the palm to Jeffery's Patent Marine glue, a compound of India-rubber, shellac and coal-tar naphtha. Small quantities can be purchased at most of the tool warehouses, at cheaper rates than it can be made. The color of this glue, however, prevents its being much used.

Cement—Rice Flour.

An excellent cement may be made from rice flour, which is at present used for that purpose in China and Japan. It is only necessary to mix the rice flour intimately with cold water and gently simmer it over a fire, when it readily forms a delicate and durable cement, not only answering all the purposes of common paste, but admirably adapted for joining together paper, cards, etc., in forming the various beautiful and tasteful ornaments which afford much employment and amusement to the ladies. When made of the consistence of plaster-clay, models, busts, bas-relievos, etc., may be formed of it; and the articles, when dry, are susceptible of high polish, and are very durable.

Cement, Colorless—For China, Glass, Etc.

This cement, being nearly colorless, possesses advantages which liquid glue and other cements do not. Dissolve

half an ounce of gum acacia in a wine-glass of boiling water; add plaster-of-Paris sufficient to form a thick paste, and apply it with a brush to the parts required to be cemented together.

Cement—White Lead as.

Cracked vessels of earthenware and glass may often be usefully repaired, though not ornamentally, by whitelead spread on strips of calico, and secured with bands of twine.

Cement—Red,

Which is employed by instrument makers for cementing glass to metals, and which is very cheap, and exceedingly useful for a variety of purposes, is made by melting five parts of black resin, one part of yellow wax, and then stirring in gradually one part of red ochre or Venetian red, in fine powder, and previously well dried. This cement requires to be melted before use, and it adheres better if the objects to which it is applied are warmed.

Cement for Bicycle Tires.

Take two parts of asphalt and one part of gutta-percha, and melt them together. When quite hot put it on the wheel, which should also be warmed, and then fit on the tire.

Cement—A Soft for Corks,

Useful for covering the corks of preserved fruit and other bottles, is made by melting yellow wax with an equal quantity of resin, or of common turpentine (not oil of turpentine, but the resin), using the latter for a very soft cement, and stirring in some dried Venetian red.

Chairs.

An eminent physician, speaking of chairs, remarks that they are too high and too nearly horizontal. We slide forward, and our spines ache. The

seats should be fifteen or sixteen inches high in the front for men, and from eight to fourteen inches for children and women. The back part of the seat should be from one to three inches lower than the front part. This last is very important. The depth of the seat from front to back should be the same as the height. The chair back is likewise unphilosophical. The part which meets the small of the back should project furthest forward. Instead of this, at that point there is generally a hollow; this is the cause of so much pain and weakness in the small of the back. The present seats produce discomfort, round shoulders, and other distortions.

Chairs (Cane-Bottom)—To Clean.

Turn up the chair bottom, etc., and with hot water and a sponge wash the cane-work well, so that it may become completely soaked. Should it be very dirty you must add soap. Let it dry in the open air, if possible, or in a place where there is a thorough draught, and it will become as tight and firm as when new, providing that it has not been broken.

Chalk—Prepared.

Take a solution of muriate of lime, and add a solution of carbonate of soda as long as it causes precipitation; wash the sediment, and dry it.

Charades—Words for Acting or Writting.

A charade is a form of hidden wit. Charades are of three kinds: first, the written, as:

My first is a pronoun, my next is used at weddings, my whole is an inhabitant of the sea—(Herring).

Then the acted, as:

A tableau in which a man holds up a large map of the United States—(Statesman).

Lastly the burlesque tableau where a pun is made with a material object, as:

An empty match box on the table—(Matchless). Or a pair of dice—(Paradise).

Air-pump	Car-rot
Al-tar	Cart-ridge
Ann-ounce	Chair-man
A-pex	Chamber-maid
Arch-angel	Cheer-ful
Arm-let	Christ-mas
Art-less	Church-yard
Ass-ail	Clerk-ship
Back-bite	Cob-web
Back-slide	Cock-pit
Bag-dad	Coin-age
Bag-pipe	Con-fined
Bale-ful	Con-tent
Band-age	Con-traet
Band-box	Cork-screw
Bane-ful	Count-less
Bar-gain	Court-ship
Bar-row	Crab-bed
Beard-less	Cross-bow
Birth-right	Cur-tail
Black-guard	Cut-lass
Black-smith	Cut-throat
Block-head	Day-break
Boat-man	Death-watch
Book-worm	Dog-ma
Boot-jack	Drug-get
Brace-let	Ear-ring
Break-fast	Earth-quake
Brick-bat	False-hood
Brick-dust	Fan-atie
Bride-groom	Fare-well
Brim-stone	Fare-thing
Broad-cloth	Fire-man
Broad-side	Fire-pan
Brow-beat	Fire-ship
Bug-bear	Fire-work
Bull-dog	Fish-hook
Bull-rush	Foot-ball
Bump-kin	Foot-man
Cab-in	Foot-pad
Can-did	Foot-step
Care-ful	Foot-stool
Car-pet	For-age

Charades—Continued.

For-bear	Hind-most
For-bid	Hogs-head
Fox-glove	Home-bred
Free-hold	Honey-comb
Free-stone	Honey-moon
Fret-work	Horse-back
Fri-day	Horse-shoe
Friend-ship	Hot-bed
Frost-bite	Hot-house
Fur-long	Hour-glass
Gain-say	House-hold
Gang-way	House-maid
Glow-worm	House-wife
God-father	Hurri-cane
God-mother	Ill-bred
Gold-smith	In-action
Goose-berry	In-born
Grand-father	In-crease
Grate-ful	In-justice
Grave-stone	In-land
Grey-hound	In-mate
Grind-stone	In-no-cent
Gun-powder	In-tent
Hail-stone	Inter-meddle
Hail-storm	Inter-view
Half-penny	In-vest
Ham-let	Joy-ful
Ham-mock	Joy-less
Hand-cuff	Key-stone
Hard-ship	Kid-nap
Hard-ware	King-fisher
Head-land	Lace-man
Head-less	Lady-ship
Head-long	Lamp-black
Head-stone	Land-lady
Head-strong	Land-lord
Hear-say	Land-mark
Heart-less	Land-tax
Heart-sick	Lap-dog
Heart-string	Laud-able
Hedge-hog	Law-suit
Heir-less	Leap-frog
Hen-roost	Leap-year
Herds-man	Life-guard
Her-ring	Live-long
Her-self	Load-stone
High-land	Log-book
High-way	Log-wood

Charades—Continued.

Loop-hole	Over-bear
Lord-ship	Over-board
Love-sick	Over-cast
Low-land	Over-come
Luke-warm	Over-do
Mad-house	Over-flow
Mad-man	Over-head
Mag-pie	Over-heard
Main-sail	Over-load
Main-spring	Over-power
Man-age	Over-rate
Man-date	Over-reach
Marks-man	Over-ripe
Match-less	Over-rule
Mis-chief	Over-run
Mis-decd	Over-see
Mis-judge	Over-shadow
Mis-take	Over-shoe
Monks-hood	Over-shoot
Moon-light	Over-sight
Muf-fin	Over-size
Name-sake	Over-stock
Neck-lace	Over-take
News-paper	Over-throw
Nick-name	Over-took
Night-cap	Over-work
Night-gown	Ox-gall
Night-mare	Pack-age
Night-watch	Pad-dock
Noon-tide	Pad-lock
North-star	Pain-ful
Not-able	Pain-less
Not-ice	Pal-ace
No-where	Par-a-dise
Nut-gall	Pan-cake
Oat-cake	Par-son
Oat-meal	Part-ridge
On-set	Pass-able
O-pen	Pass-over
Out-cast	Pas-tinie
Out-cry	Patch-work
Out-fit	Path-way
Out-line	Pat-ten
Out-live	Pen-knife
Out-rage	Pen-man
Out-shine	Pen-man-ship
Out-side	Per-jury
Out-ward	Pick-lock

Charades—Continued.

Pick-pocket	Snow-drop
Pin-cushion	Some-body
Pine-apple	Some-how
Pitch-fork	Some-what
Play-house	Some-where
Play-mate	Spare-rib
Plough-share	Speak-able
Pole-eat	Sports-men
Port-hole	Spot-less
Post-age	Spruce-beer
Post-office	Stair-case
Punch-bowl	Star-board
Quick-sand	Star-light
Rain-bow	States-man
Rasp-berry	Stead-fast
Rattle-snake	Steer-age
Red-breast	Step-mother
Ring-leader	Steward-ship
Rolling-pin	Stiff-neck
Round-house	Store-house
Safe-guard	Straw-berry
Sand-stone	Sun-beam
Sat-in	Sun-burnt
Sauce-pan	Sun-day
Saw-dust	Sun-flower
Scare-crow	Sup-port-able
Scot-free	Sup-press
Sea-gull	Sweep-stake
Sea-sick	Sweet-bread
Second-hand	Sweet-heart
Sex-ton	Sweet-william
Shape-less	Swords-man
Shell-fish	Tar-get
Ship-board	Tea-cup
Ship-wreck	Tell-tale
Shoe-string	Ten-or
Short-hand	Thank-ful
Side-board	There-by
Side-saddle	There-fore
Side-ways	There-with
Silk-worm	Thought-ful
Silver-smith	Three-fold
Six-fold	Three-score
Skim-milk	Through-out
Sky-lark	Thunder-bolt
Sky-light	Thunder-struck
Slip-shod	Till-age
Snow-ball	Tire-some

Charades—Continued.

Toad-stool	Water-work
Toi-let	Way-lay
Toil-some	Web-foot
Top-knot	Wed-lock
Top-most	Week-day
Top-sail	Wel-fare
Touch-stone	Well-born
Trap-door	Well-bred
Two-fold	Whip-cord
Up-hold	Whirl-pool
Up-right	Whirl-wind
Up-roar	White-wash
Up-shot	Whole-sale
Up-start	Wild-fire
Use-less	Wind-mill
Wag-on	Wind-pipe
Waist-coat	Win-some
Wake-ful	Wood-land
War-like	Wood-man
Waste-ful	Work-house
Watch-word	Work-man
Water-fall	Worm-wood
Water-fowl	Writ-ten
Water-mark	Yel-low
Water-mill	Youth-ful

Charcoal Making.

Charcoal made from wood is a form of carbon containing the ashes, or incombustible portions of the wood from which it is prepared, and some of its volatile ingredients. The principal object of its preparation is its superior heat-making properties as compared with wood. The greater portion of the charcoal offered for sale is burned in kilns, but in thickly-wooded regions much is made in the primitive manner which is known as "charring in pits." The most ancient method of preparing charcoal was to throw the wood in pits dug in the ground, and to keep it partially covered with earth while consuming, and although the wood is now charred on the surface and not in excavations, the process is still called "pit charring." When it is proposed to

make a quantity of wood charcoal, a level place is prepared for the foundation of the pit, as it is called, although it is in reality a mound. A chimney is then made by driving stakes of the desired height, arranged in a circle about eighteen inches in diameter. The wood for coaling is cut four feet long and hauled to the pit, the large sticks being first split. It is not absolutely necessary that the wood be dry, though the more complete the seasoning the better the results of the charring, since the more water there is present the more heat is abstracted, and more fuel is necessary to expel it. The first sticks are set up against the chimney, the next against these, then others on top of these, and so on, all leaning a little toward the center, until the pile has attained the required size, say twenty-five cords for a thousand-bushel pit.

When the arrangement of the pile is finished, the outer surface is filled in with chips and sticks, and the whole is covered with branches, twigs, leaves, straw or moss, upon which sods or moistened earth are laid, together with fine charcoal waste of previous burnings, the depth of the covering varying from six to eight inches, and the whole being smoothed and firmly spatted down. Draught holes, two or three inches in diameter and four feet apart, are made in the covering at the bottom. A fire is kindled in the bottom of the chimney from the top, and when well a-burning the chimney is filled with wood and covered like the rest of the pit. Constant watch must now be kept that the wood does not burn too rapidly. Evidence of its doing so is given by the appearance of blue smoke, as only a steam-like vapor rises from the vents when the process of charring is going on properly. When this smoke is seen the fire is smothered by packing in green wood at the threatened point, and covering it again closely with straw

and earth. If all goes well, a thousand-bushel pit will be burned in ten or fifteen days. As the process proceeds, it is necessary to fill up some of the holes and open others according as the burning progresses from one portion of the pile to the other, or needs accelerating or retarding. Channels are made under the heap for the tarry matters which run out from the wood towards the close of the process.

When the operation is completed the coal is raked out with long-toothed iron rakes. It is best to do this work at night, as then any remaining spark of fire can be detected and promptly extinguished by throwing coal dust or moistened earth upon it. After the un-charred brands are removed the coal is ready for market. The coal is hauled away in wagons divided into deep, wide-topped boxes holding one hundred bushels or more.

To dump the coal the horses are hitched to a staple in the hinder part of the wagon bottom, which is made to slide out; the team is started and the coal falls out underneath.

Log pits are made by arranging twelve-foot logs in layers. The interstices between the logs are packed with poles and small wood, the pile being boarded up at the ends of the logs, leaving a space of several inches between the boarding and the logs, to be filled with earth, after which the ends and top of the pile are covered with straw and earth, as in the circular pit. The fire is kindled in a trench dug under one end, two feet wide and two feet deep. Vent or draught holes are made under the boarding. These log pits are sometimes ten rods long, and it is not unusual to draw coal from one end, while the other end is yet burning.

Oak and alder make the best charcoal; next to them birch of all kinds, pine, basswood, poplar and spruce.

Hemlock is the least desirable wood for this purpose, as it makes snapping coal.

Charcoal—As a Purifier.

All sorts of glass vessels and other utensils may be purified from long-retained smells of every kind, in the easiest and most perfect manner, by rinsing them out well with charcoal powder after the grosser impurities have been scoured off with sand and potash. Rubbing the teeth and washing out the mouth with fine charcoal powder will render the teeth beautifully white and the breath perfectly sweet, when an offensive breath exists owing to a scorbutic disposition of the gums. Putrid water is immediately deprived of its bad smell by charcoal. When meat, fish, etc., from intense heat or long keeping are likely to become tainted, a simple mode of keeping them sound and healthful is to put a few pieces of charcoal, each about the size of an egg, into the pot or saucepan wherein the fish or flesh is to be boiled. Among others, an experiment of this kind was tried upon a turbot, which appeared to be too far gone to be eatable; the cook as advised, put three or four pieces of charcoal under the strainer in the fish kettle; after boiling the proper time, the turbot came to the table sweet and firm.

Charcoal as a Disinfectant.

The great efficacy of wood and animal charcoal in absorbing effluvia and the greater number of gases and vapors has long been known. Charcoal powder has also, during many centuries, been advantageously employed as a filter for putrid water, the object in view being to deprive the water of numerous organic impurities diffused through it, which exert injurious effects on the animal economy. The best form of charcoal, however, for filters is the animal charcoal. Charcoal removes the alkaloids, resins, me-

tallic salts, etc. It does not, however, retain its powers for any great length of time, and therefore the charcoal of a filter requires renewing occasionally. Charcoal not only absorbs effluvia and gaseous bodies, but especially, when in contact with atmospheric air, oxidizes and destroys many of the easily alterable ones, by resolving them into the simplest combinations they are capable of forming, which are chiefly water and carbonic acid. It is on this oxidizing property of charcoal, as well as on its absorbent power, that its efficacy as a deodorizing and disinfecting agent chiefly depends.

Charcoal Ventilators.

It has been proposed to employ charcoal ventilators, consisting of a thin layer of charcoal enclosed between two thin sheets of wire gauze, to purify the foul air which is apt to accumulate in water closets, in the close wards of hospitals, and in the impure atmosphere of many of the back courts and mews-alleys of large cities, all the impurities being absorbed and retained by the charcoal, while a current of pure air alone is admitted into the neighboring apartments. In this way pure air may be obtained from exceedingly impure sources. The proper amount of air required by houses in such situations might be admitted through sheets of wire gauze or coarse canvas, containing a thin layer of coarse charcoal powder. A tolerably thick charcoal ventilator, as described above, could be very advantageously applied to the gully-holes of common sewers, and to the sinks in private dwellings, the foul water in both cases being carried into the drain by means of tolerably wide siphon pipes, retaining always about a couple of inches of water. Such an arrangement would effectually prevent the escape of any effluvia, would be easy of construction, and not likely to get soon out of order.

Charcoal Respirators.

In respirators for the mouth the air is made to pass through a quarter of an inch of coarsely powdered charcoal, retained in its place by two sheets of silvered wire gauze, covered over with thin woolen cloth, by which means its temperature is greatly increased. The charcoal respirator possesses a decided advantage over respirators of the ordinary construction, in that all disagreeable effluvia are absorbed by the charcoal, so that comparatively pure air alone is inhaled. Adaptations may be made to cover the nostrils as well as the mouth, for protecting the wearer against fevers and other infectious diseases, and chiefly for use in chemical works, common sewers, etc., to protect the workmen from the noxious effects of the deleterious gases to which they are frequently exposed.

Charcoal Applied to Sores, &c.

Charcoal powder has been most successfully employed at hospitals, to arrest the progress of gangrene and other putrid sores. The charcoal does not require to be put immediately in contact with the sores, but is placed above dressings, not infrequently quilted loosely in a little cotton wool. In many cases patients who were rapidly sinking have been restored to health.

Chemical Substances—Everyday Names for.

Common Names.	Chemical Names.
Aqua fortis,	Nitric acid.
Blue vitriol,	Sulphate of copper.
Cream of tartar,	Bitartrate of potassium.
Calomel,	Mercury Subchloride
Chalk,	Carbonate of calcium.
Chloroform,	Chloride of formyl.
Common salt,	Chloride of sodium.
Copperas,	Sulphate of iron.

Common Names.	Chemical Names.
Corrosive sublimate,	Bi-chloride of mercury
Epsom salts,	Sulphate of magnesia.
Fire damp,	Light carbureted hydrogen.
Glauber's salt,	Sulphate of sodium.
Glucose,	Grape sugar.
Iron pyrites,	Bi-sulphide iron.
Laughing gas,	Protoxide of nitrogen.
Lime,	Oxide of calcium.
Lunar caustic,	Nitrate of silver.
Nitre or saltpetre,	Nitrate of potash.
Oil of vitriol,	Sulphuric acid.
Potash,	Oxide of potassium.
Red lead,	Oxide of lead.
Rust, iron,	Oxide of iron.
Sal ammoniac,	Muriate of ammonia.
Slaked lime,	Hydrate of calcium.
Soda,	Sodium Bicarbonate,
Spirits of harts-horn,	Ammonia.
Spirits of salts,	Hydrochloric or muriatic acid.
Stucco or plaster of Paris,	Sulphate of lime.
Sugar of lead,	Acetate of lead.
Verdigris,	Basic acetate of copper.
Vermilion,	Sulphide of mercury.
Vinegar,	Acetic acid (diluted).
Volatile alkali,	Ammonia.
Water,	Oxide of hydrogen.
White precipitate,	Ammoniated mercury.
White vitriol,	Sulphate of zinc.

Cherry—The.

This fruit has become a general favorite throughout the land. Its easy culture, hardiness and productiveness, and the value of its fruit for general uses, have caused a large planting of late. It thrives quite well on either high or low lands and on sandy and

loamy soils. The Morello family is highly successful wherever planted, and embraces the sour varieties—Early Richmond, Kentish, Montmorency, English Morello, and common red (black) Morello. In some localities the finer flavored varieties—as May Duke, Governor Wood, Royal Duke, Belle Magnifique, Belle de Choisy, Reine Hortense—are quite successful. The class known as “sweet varieties” do not succeed in the South and prairie states. The tree often becomes fatally injured by the intense heat of summer and the extremes of winter weather.

The main requisites in successful culture are deeply prepared and enriched land, where not so by nature, and a vigorous wood growth. Whenever a tree becomes stunted by neglect or from sterility of the land, decay soon sets in at the heart, and death generally follows in a few years.

This, as well as all classes of soft fruits, should be as near the dwelling as practicable, for convenience in gathering the fruit and general care of the trees.

Location.

Highlands are preferable, as the fruit-buds are less liable to be injured by spring frosts, and the tree maintains a normal condition better through varying weather in winter, and better facilities are afforded for circulation of the currents of air during extreme rainfalls and sudden changes in temperature.

An eastern or northern slope is preferable, as trees do not suffer so much from droughts or heat of sun, and should be sufficiently inclined to drain off any sudden, heavy rainfall, as a retention of a surplus amount in the land will weaken the vigor of trees and endanger their lives.

A deep loam and a sandy soil are to be preferred; but other soils can be made suitable by deep tillage and ma-

nuring, and for arid lands a heavy mulching.

When planted on flat lands drains must be provided; but on slopes water is seldom retained in amount detrimental to the tree. This is forcibly impressed on the grower when heavy and continuous rains flood the land at the ripening period, which is followed with cracking and bursting of the fruit, rendering almost the entire crop unmarketable.

Windbreaks.

On open prairies windbreaks are an advantage, when on the south and west sides only.

Deep plowing and pulverizing of the surface and stirring of the subsoil are as much needed with the cherry as any fruit. Sterile land must be well enriched with barn-yard litter, wood ashes, or any well-rotted vegetable matter.

Selection of Stock.

The trees should never be over two years old; strong, vigorous and well rooted. A second-class tree is never cheap and its use is questionable economy; better plant fewer of the first-class, at same cost.

Planting.

The holes, experience has demonstrated, need not be any larger than is necessary to receive the roots when spread out naturally, and deep enough to set the tree about as deep as it grew in the nursery. In light, sandy soil it may be some deeper, but not in clay or heavy soil.

Checkers—Rules of the Game.

The accepted laws for regulating the game are as follows:

The board is to be so placed as to have the black double corners at the right hand of the player.

The first move is taken by agreement, and in all the subsequent games

of the same sitting, the first move is taken alternately.

The man touched must be moved, but the men may be properly adjusted during any part of the game. After they are so placed, if either player, when it is his turn to play, touch a man he must move it or forfeit the game.

It is optional with the player either to allow his opponent to stand the huff, or to compel him to take the offered piece or let the piece remain on the board.

("Standing the huff" is when a player refuses to take an offered piece, but either intentionally or accidentally makes another move. His adversary then removes the man that should have taken the piece, and makes his own move—huff and move, as it is called.)

Five minutes is the longest time allowed to consider a move, which if not made within that time, forfeits the game, and where there is only one way of taking one or more pieces, one minute only is allowed, or the game is forfeited.

It is compulsory upon the player to take all the pieces he can legally take by the same series of moves. On making a King, however, the latter remains on his square till a move has been made on the other side.

A false move must be remedied as soon as it is discovered, or the maker of such move loses the game.

When only a small number of men remain toward the end of the game, the possessor of the lesser number may call on his opponent to win in at least fifty moves, or declare the game drawn. With two Kings to one, the game must be won in at most twenty moves on each side.

Chess—Laws of.

The rules given below are those which are now universally accepted by English and American players.

The board is to be so placed as to leave a white square at the right hand of the player.

Any mistake in placing the board or the men may be rectified before the fourth move is completed, but not after.

The players draw lots for the first move, and take the move alternately.

(When odds are given, the player giving them moves first. White generally moves first. It is usual to play with the white and black men alternately.)

The piece touched must be moved. When the fingers of the player have once left the piece, it cannot be again removed from the square it occupies.

(Except the move be illegal, when the opponent can insist on the piece being moved in the proper manner, or for the player's King to be moved instead.)

In touching a piece simply to adjust it, the player must notify his adversary that such is his intention.

If a player take one of his own men by mistake, or touch a wrong man, or one of his opponent's men, or make an illegal move, his adversary may compel him either to take the man, make the right move, move his King, or replace the piece, and make a legal move.

A pawn may be played either one or two squares at a time when first moved.

(In the latter case it is liable to be taken en passant, i. e. with a pawn that could have taken it had it been played only one square.)

A player cannot castle under any of the following circumstances:—1. If he has moved either King or Rook. 2. If the King be in check. 3. If there be any piece between the King and Rook. 4. If the King, in moving, pass over any square commanded by any one of his adversary's forces.

If a player give a check without crying "check," the adversary need not

take notice of the check. But if two moves only are made before the discovery of the mistake, the pieces may be replaced, and the game properly played.

If a player say "check" without actually attacking the King, and his adversary move his King or take the piece, the latter may elect either to let the move stand or have the pieces replaced and another move made.

If at the end of a game the players remain, one with a superior to an inferior force, or even if they have equal forces, the defending player may call upon his adversary to mate in fifty moves on each side, or draw the game.

(If one player persist in giving perpetual check, or repeating the same move, his opponent may count the moves for the draw.)

Either stalemate, or perpetual check constitutes a drawn game.

When a pawn reaches its eighth square it must be exchanged for a piece.

(It is usual to change the pawn for a Queen, but may be replaced by a Rook, Bishop, or Knight, without reference to the pieces already on the board. In practice it would be changed for a Queen or a Knight, seeing that the Queen's moves include those of the Rook and Bishop. Thus you may have two or more Queens, three or more Rooks, Bishops or Knights on the board at the end of the game.)

Chestnut-color—To Make.

This color is composed of red, yellow and black. The English red, or red ochre of Auvergne, ochre de rue and a little black, form a dark chestnut color. It is proper for painting of every kind. If English red, which is dryer than that of Auvergne, be employed, it will be proper, when the color is intended for varnish, to grind it with drying nut-oil. The ochre of Auvergne may be ground

with the mastic gallipot, and mixed up with gallipot varnish.

The most experienced artists grind dark colors with linseed oil, when the situation will admit of its being used, because it is more drying. For articles without doors nut-oil is preferable. The colors of oak-wood, walnut-tree, chestnut, olive, and yellow, require the addition of a little litharge ground on porphyry; it hastens the desiccation of the color, and gives it body.

But if it is intended to cover these colors with varnish, as is generally done in wainscoting, they must be mixed up with essence, to which a little oil has been added. The color is then much better disposed to receive the varnish, under which it exhibits all the splendor it can derive from the reflection of the light.

Chickens—Management of.

After emerging from the shells the chickens should not be removed from under the hen. They are at first weakly and wet, but in a few hours they become thoroughly dry, and it is not until their little quaint heads peep from under the feathers of the hen that she should be removed from the nest. Many persons imagine that the chickens require feeding as soon as hatched. This is an error. At the time of hatching, the remains of the yolk are drawn into the digestive canal of the chick, and constitute its first food. This will last it for 20 to 30 hours, and then the chickens are strong and active on the legs, and ready to eat with avidity. As regards the first food for the chicks, there is nothing approaching in value to a mixture of equal parts of grated bread, yolk of hard-boiled eggs, and oatmeal slightly moistened with water. This is the best food for the first fortnight; then add gradually groats, hemp-seed, and green food, such as cress, lettuce, cabbage and leeks, chopped fine. If the weather is cold

and wet, add a little powdered pimento to the food occasionally, also a little finely minced meat as a substitute for worms and insects, fresh curd and hard-boiled eggs mashed up with the shells. Feed the chickens early in the morning, and often during the day, giving but little at a time; the water vessels should be shallow and frequently filled, and so arranged that the chickens cannot get into them. Throw the food on the ground to the chickens; they will then pick up gravel along with it, which is necessary for the digestion of the food. Of course there is not so much necessity for a substitute for the natural animal food when the hens have a free range, and scratch for worms and insects for the brood. It is important that a hen with chickens should be well fed, for if poorly fed she will drag her progeny about in search of food, taking them through the wet grass, and wearying them with over-exertion; but if well fed she broods them carefully, and only scratches to supply them with grubs and dainty animal food. Both hen and chickens must be carefully and warmly housed at night, and never allowed out until the dew is quite off the grass.

Chickens—Catarrh and Cold in.

These complaints in fowls are caused by their being exposed to dampness, and, if allowed to continue, will run to roup. Keep them on dry, elevated places. Red pepper mixed with soft food, fed several times a week, will remove a cold; and pulverized charcoal, given occasionally, is a preventive of putrid affections.

Cholera—Chicken.

A remedy promulgated by the Department of Agriculture is alum alone—giving 3 or 4 teaspoons of alum water daily, and mix with the feed (corn-meal) strong alum water. This is

said to cure the very worst cases. Another remedy is to feed raw onions, chopped fine, mixed with other food, about twice a week.

Croup—Chickens.

Try and remove the croup membranes from the mouth with a feather, and then touch the parts with a feather dipped in a solution of nitrate of silver, 10 grs. to 1 oz. of rain water. Feed no raw grain. Well boiled oatmeal or Indian corn-meal will make an excellent substitute. Put $\frac{1}{2}$ oz. of carbonate of soda in every quart of the water drunk by the chickens, and, if possible, change their roosting place to a new building. If this last cannot be done, clean the place thoroughly, and wash it over with a solution at the rate of an ounce of carbolic acid to a quart of water.

Drooping Wings.

This, in either turkeys or chickens, is caused by vermin. To cure it, grease their heads, the under sides of their wings, and their bodies under the wings, with lard or fried meat fat or any other grease. In a few days their wings will be natural, and their appetite and comfort will return.

Chickens.

To Produce Eggs.

In the production of eggs is found the most profitable branch of poultry keeping. It has been found by experience that well-kept hens of good blood will produce eggs at a cost not to exceed four cents a dozen under ordinary farm conditions. That is, it does not require extraordinary care to produce eggs at the price named, although it does require good care and proper food of the kinds that are produced on most farms.

Feeding.

Although the matter of feeding has been experimented with a great many times, it has not yet been determined

that any set ration or mixture of feeds is the best one, and successful poultrymen are divided in their opinions on the subject.

There is a general agreement among careful experimenters that a mixed feed is better than any single feed that can be given laying hens. Corn, wheat, oats, buckwheat, sunflower seeds, Kaffir corn, sorghum seed, wheat bran, wheat middlings, oil meal, milk and all kinds of garden vegetables are relished by fowls, and it is agreed that as much variety of feed as convenient produces the best results.

Green Feed:

Where fowls are at liberty they do not need vegetable feed during the summer, but during the winter they should be given raw turnips, beets, potatoes, cabbage, etc., which have been cut or chopped fine, in order to keep them in good health and promote egg-laying.

If corn is given once a day, wheat once a day and the fowls are given milk to drink, they will lay very well, provided they are not over-fed. A flock of laying hens should never be given at one time so much that they will leave any of their feed. They should be kept with a good appetite all the time. Give as great a variety as possible, but never too much at one time.

Cleanliness

About the poultry house is absolutely necessary to profit in poultry breeding. The flock may not get sick and die if the poultry house is not well taken care of, but it will not produce eggs as well under such conditions as it will when the house is kept in a sanitary condition.

Chicken Lice

Of several kinds are a prolific cause of disease, death and loss to the poultryman. They are frequently very numerous before their presence is even

suspected. They never get thick in a well-kept poultry house, as the whitewashing, cleaning and sunlight are not to their liking and they do not reproduce rapidly.

The best way to keep them off the fowls is to wet the perches frequently at intervals with coal oil, and keep the floor of the poultry house covered with dry dust of some kind. Whitewash is death to them and the whitewashed poultry house is not often afflicted with them, if the whitewashing is repeated at frequent intervals during the season.

To Improve Stock.

A good way to improve a flock of poultry is to purchase a full-bred cock, breeding him two years, and then getting another of the same breed, but not related in blood. The first year will show a change and this will be more easily done than any other way, and will also be much the cheapest way.

Do not Keep Hens too Long.

Hens should not be kept after their second summer, as it has been proven beyond the possibility of doubt that a hen does not pay for her keeping after she is two years old. A hen hatched in the spring should begin to lay in the fall and keep laying through the winter and until time for her to moult the next fall. Just before she begins to shed her feathers and while she is in good condition is usually the best time to sell. This gives each hen a year of laying, and after that the most profitable use to make of her is to sell her in the market, having pullets to take her place.

An exception to this rule would be made where poultry is kept for breeding instead of for the eggs they produce, as old hens are best for breeders.

The farmers of this country could keep five times as much poultry as they do without destroying a profitable demand, for it is only on account of the

limited supply that much more poultry is not eaten.

Poultry can be produced as cheaply as pork, but it always brings a better price; therefore we should produce more poultry and fewer pigs.

Children—The Discipline of.

Children should not be allowed to ask for the same thing twice. This may be accomplished by parents, teachers, or whoever may happen to have the management of them, paying attention to their little wants, if proper, at once, when possible. Children should be made to understand that when they are not answered immediately it is because it is not convenient. Let them learn patience by waiting.

We learn from daily experience, that children who have been the least indulged thrive much better, unfold all their faculties quicker and acquire more muscular strength and vigor of mind than those who have been constantly favored and treated by their parents with the most solicitous attention; bodily weakness and want of self-reliance are the frequent attributes of the latter.

The greatest art in educating children consists in a continued vigilance of all their actions, without letting them discover that they are being watched and guided.

Children's Drink.

Doctors are decidedly against giving drink to children in large quantities, and at irregular periods, whether it consists of the mother's milk or any other equally mild liquid. In the latter part of the first year, pure water, milk and water, or toast and water may occasionally be given. On no account should a young child be permitted to taste beer or wine, unless specially ordered by a physician.

Many children acquire a habit of drinking during their meals; it would

be more conducive to digestion if they were accustomed to drink only after having made a meal; this salutary rule is too often neglected.

Children—To Protect from Burning.

Add one ounce of alum to the last water used in rinsing children's dresses, and they will be rendered uninflammable. It would be better still to dress them in woolen materials during the season when fires are needed.

Children's Sleep.

Infants cannot sleep too long; and it is a favorable symptom when they enjoy a calm and long-continued rest, of which they should by no means be deprived, as this is the greatest support granted to them by nature.

A child lives comparatively much faster than an adult; every stimulus operates more powerfully; and not only its constituent parts, but its vital resources also, are more speedily consumed. Sleep promotes a more calm and uniform circulation of the blood; it facilitates the assimilation of the nutriment received and contributes toward a more copious and regular deposition of alimentary matter, while the horizontal posture is the most favorable to the growth and development of the child.

Sleep ought to be in proportion to the age of the infant. After the age of six months, the period of sleep, as well as all other animal functions, may in some degree be regulated; yet, even then a child should be suffered to sleep the whole night and several hours both in the morning and in the afternoon. Mothers and nurses should endeavor to accustom infants from the time of their birth to sleep in the night preferably to the day, and for this purpose they ought to remove all external impressions which may disturb their rest, such as noise, light, etc., and

especially not obey every call for taking them up and giving food at improper times.

After the second year children will not instinctively require to sleep in the forenoon, though after dinner it may be continued to the third and fourth year of life, if the child shows a particular inclination to repose; because, till that age, the full half of life may safely be allotted to sleep. From that period, however, sleep ought to be shortened for the space of one hour with every succeeding year, so that a child of seven years old may sleep about eight, and not exceeding nine hours; this proportion may be continued to the age of adolescence, and even manhood.

To awaken children from their sleep with a noise, or in an impetuous manner, is extremely injudicious and hurtful; nor is it wise to carry them from a dark room immediately into a glaring light, or against a dazzling wall; for the sudden impression of light debilitates the organs of vision, and lays the foundation for weak eyes.

Children should never be frightened or threatened by reference to ghost stories, or goblins, etc. They have such a small amount of reasoning power and are so susceptible to fear and fright that if such stories are told to them they suffer acutely during the hours of darkness and quiet.

Night Nurseries.

A bedroom or night nursery ought to be spacious and lofty, dry, airy and not inhabited through the day. The windows should never be opened at night, but may be left open the whole day in fine, clear weather.

If possible, no adult should be suffered to sleep in the same room, and no linen or washed clothes should ever be hung there to dry, as they contaminate the air in which so considerable a portion of infantile life must be spent, and

the consequences attending a vitiated atmosphere in such rooms are serious and often fatal.

Feather-beds should be banished from nurseries, as they are unnatural and debilitating contrivances. The horsehair mattress is now generally preferred, being cooler, more healthful and more comfortable. Chaff beds also may be highly recommended, as they are warm, cheap and easy to fill. They are by no means expensive, can be easily cleaned and save the use of mattresses.

Lastly, the bedstead must not be placed too low on the floor; nor is it proper to let children sleep on a couch which is made without any elevation from the ground; because the most pernicious air in an apartment is that within one or two feet from the floor, while the most wholesome, or atmospheric air, is in the middle of the room.

Children—Washing.

A child should never go to bed dirty—the whole body should be washed every day. Young children should be washed after breakfast, and older ones before that meal. Care should be taken lest the child catches a chill while being dried. A sponge is generally used for washing children, but some persons prefer a piece of flannel. Special care should be taken to use only the best and purest soap.

Chimneys—To Build.

Let the bed be laid of brick and mortar, iron or stone; then the workman should take a brick in his left hand, and with the trowel, draw the mortar upon the end of the brick, from the underside, and not from the outside edge, as is usual. Then, by pressing the brick against the next one, the whole space between the two bricks will be filled with mortar; and so he should point up the inside as perfectly as the outside, as he proceeds.

By drawing the mortar on the edge of the brick, the space between the ends will not always be entirely filled, and will make (where the inside pointing is not attended to) a leaky and unsafe chimney, which, if not kept clear of soot, will, in burning out, stand a good chance of setting the building on fire.

Chimneys—Salt in Building.

In building a chimney, put a quantity of salt into the mortar with which the inner courses of brick are laid. The effect will be that there will never be any accumulation of soot in that chimney. The philosophy is thus stated: The salt in the portion of mortar which is exposed absorbs moisture every damp day. The soot, thus becoming damp, falls down into the fireplace.

Chimneys—To Build.

• Every chimney ought, if practicable, to extend clear to the bottom of the cellar, and rest there on a substantial foundation, covered with a broad, flat stone, to prevent the absorption of dampness by the bricks. This will not only prevent accidents from fire, but will prevent the superincumbent weight from injuring the wall in any way. More than this, when a chimney rests on a foundation in the attic, or even in an upper room, during long and severe storms, such a large volume of water usually falls directly into the chimney that the bricks at the bottom become thoroughly saturated. Consequently, the surplus water soaks down through the wall below; whereas, if the chimney had extended to the bottom of the cellar, the walls would not have been injured by the great fall of rain.

By building chimneys with double walls, leaving an air-space between them, an excellent means of ventilation is secured, from the top or bottom of rooms, as desired by inserting ventilat-

ors in the outer chimney. The heat from the inner, when fires are used, will always make a good draft upward.

To build a chimney so that it will not smoke, the chief point is to make the throat of the chimney not less than four inches broad and twelve long; then the chimney should be abruptly enlarged to double the size, and so continue for one foot or more; then it may be gradually tapered off as desired. But the inside of the chimney, throughout its whole length at the top, should be plastered very smooth with good mortar, which will harden with age. If salt is mixed pretty freely with the mortar used, moisture enough will be imbibed to prevent the soot from adhering. The area of a chimney should be at least half a square foot, and no flue less than 60 square inches. The best shape for a chimney is circular or many-sided, as giving less friction, (brick is the best material, as it is a non-conductor), and the higher above the roof the better.

Chimneys—Remedy for Smoking.

From experience it has been found that by the use of fine wire gauze of from 36 to 40 wires to the inch, as a screen blower, or guard, judiciously applied to registers, stoves, ranges or stove doors, little if any smoke will come into the room. The atmospheric pressure prevents the smoke entering the room through the gauze, and if applied immediately to the fire more smoke will be consumed than by any other means. In that case the wire should be kept two inches from immediate contact with the hot fire.

Chimneys—To Cure when Smoky.

The common causes of smoky chimneys are either that the wind is too much let in above at the mouth of the shaft, or else that the smoke is stifled below. They may also proceed

from there being too little room in the vent, particularly where several open into the same funnel. The situation of the house may likewise affect them, especially if backed by higher ground or other buildings.

The best method of cure is to carry from the air a pipe under the floor and opening under the fire; or, when higher objects are the cause, to fix a movable cowl at the top of the chimney.

In regard to smoky chimneys, a few facts and cautions may be useful, and a very simple remedy may often render the calling in of masons and bricklayers unnecessary.

Observe that a northern aspect often produces a smoky chimney.

A single chimney is more apt to smoke than when it forms part of a stack.

Straight funnels seldom draw well.

Large fire-places are apt to smoke, particularly when the aperture of the funnel does not correspond in size. For this a temporary remedy may be found in opening a door or window—a permanent cure by diminishing the lower aperture.

When a smoky chimney is so incorrigible as to require a constant admission of fresh air into the room, the best mode is to introduce a pipe, one of whose apertures shall be in the open air and the other under the grate; or openings may be made near the top of the apartment, if lofty, without any inconvenience even to persons sitting close by the fire.

This species of artificial ventilation will always be found necessary for comfort where gas is used internally, whether a fire is lighted or not.

Where a chimney only smokes when a fire is first lighted, this may be guarded against by allowing the fire to kindle gradually; or more promptly by laying any inflammable substance, such as shavings, on the top of

the grate, the rapid combustion of which will warm the air in the chimney, and give it a tendency upwards, before any smoke is produced from the fire itself. If old stove-grates are apt to smoke, they may be improved by setting the stove further back. If that fails, contract the lower orifice.

In cottages, the shortness of the funnel or chimney may produce smoke, in which case the lower orifice must be contracted as small as possible by means of an upright register.

If a kitchen chimney overpowers that of the parlor, as is often the case in small houses, apply to each chimney a free admission of air, until the evil ceases.

When a chimney is filled with smoke, not of its own formation, but from the funnel next to it, an easy remedy offers, in covering each funnel with a conical top or earthen crock, not cylindrical, but a frustum of a cone, by means of which the two openings are separated a few inches, and the cold air or the gust of wind no longer forces the smoke down with them.

If these remedies fail it will be generally found that the chimney only smokes when the wind is in a particular quarter, connected with the position of some higher building, or a hill, or a grove of trees. In such cases the common turncap, as made by tinmen and ironmongers, will generally be found fully adequate to the end proposed. A case has occurred of curing a smoky chimney exposed to the northwest wind, and commanded by a lofty building on the southeast, by the following contrivance:

A painted tin cap, of a conical form, was suspended by a ring and swivel, so as to swing over the mouth of the chimney-pot by means of an arched strap or bar of iron nailed on each side of the chimney. When a gust of wind laid this cap (which, from its resem-

blance in form and use to an umbrella, is called a paravent or wind-guard) close to the pot on one side, it opened a wider passage for the escape of the smoke on the opposite side, whichever way the wind came, while rain, hail, etc., were effectually prevented from descending the flue.

Chimneys—Leaks Around.

These may be stopped by applying a paste made of tar, and dry, sifted road dust. The paste should be lapped over the shingles to form a collar.

Chinaware—To Make.

The composition of the eastern or proper chinaware, according to accounts that have great marks of authenticity, is of two earths; one of which is called petunse; the other a refractory earth, called kaolin.

The preparation of the petunse, or aluminous earth, is by pounding the stone till it is reduced to a very fine powder, and then washing it over to bring it to the most impalpable state, which is thus performed: After the stone is rendered as fine as it can be by pounding or grinding, the powder must be stirred into a large tub full of water, and, being stirred about, the upper part of the water must be laded out into another tub, by which means the finest particles of the powder will be carried into it. The water in the second tub must be then suffered to stand at rest till the powder be subsided, and as much as can be laded off clear must be put back into the first tub and there being again stirred about, and loaded with a fresh quantity of the most subtle part of the powder, must be laded again into the second tub as before, and this must be repeated till none be left in the first tub but the grosser part of the stone, which, not being of a due fineness, must be again pounded, and treated as at first. The fine powder

contained in the second tub must be then freed from the water, by lading off the clear part, and suffering what remains to exhale, till the matter becomes of the consistence of soft clay, when it will be fit to be commixed with the kaolin for use.

The kaolin is prepared in the same manner by washing over; but some specimens are so fine, that there is no occasion for this or any other purification.

From these two mixed together, the clay or paste is formed; but it is said that the proportion of the respective quantities is made to vary according to the intended goodness of the ware, the best being made from equal quantities, and the worst from two of the kaolin to one of the petunse.

China, English—Composition of.

The following composition will produce wares, which will possess the properties of the true china, if judiciously managed:

Mix the best white sand, or calcined flints, finely powdered, 20 lbs.; of very white pearlash, 55 lbs.; of white calcined bones, 2 lbs. Temper the whole with gum arabic or senegal, dissolved in water.

This requires a considerable force and continuance of heat to bring it to perfection, but it will be very white and good when it is properly treated. Where mica can be obtained, it is preferable to calcined bones, and as it will form a kind of paste for working, a weaker gum-water will answer the purpose.

China (Saxon or Dresden)—To Make.

The Saxon composition, of which the chinaware is formed, is greatly similar to that of the eastern. In the place of the petunse, a stone is used which is improperly called in the German lan-

guage, bleispatt, or spar of lead. It is a stone of a very opposite nature, as spars are calcareous, and will, on calcining, become lime; on the other hand, this stone is of a vitreous nature. This spar is of a very hard texture, and of a light flesh-color, or pale, whitish red. It is prepared by pounding and washing over, which may be done as above directed, and it is then ready for compounding with the mica. The mica is employed in the Saxon composition for the other ingredients; and is likewise prepared by grinding and washing over, when it is not in a perfect and pure state; but when it is entirely clean, it may be tempered with the texture, thoroughly broken, and it will be of the consistence of soft clay.

The two kinds of earth being prepared in the state of a soft paste, they are to be incorporated and blended into one mass, which is done by rolling and stirring them well after they are in the same vessel, and then kneading them with the feet till they are thoroughly united. When the compound mass is formed, it is made into cakes, or square pieces, and put by layers into cases of wood or stone, which must be placed in a moist situation, and left for two or three months, during which time a kind of ferment enters into the mixture, by which the parts of the different matter combine and form a substance with new qualities, unknown while separate. This change shows itself upon the whole mass by a fetid smell, and a greenish or bluish color, and a tenacity like that of clay, or the argillaceous moistened earths. If the time of keeping the paste in this condition be prolonged to a year or more, it will further improve its qualities, but great care must be taken to prevent its becoming dry; to prevent which, there may be occasion to water it. When, however, the described qualities are found in the matter, it is fit for use,

and vessels, etc., may be wrought of it without any other preparation.

China or Glassware—To Mend.

A useful cement is produced by powdered chalk and white of egg. A mixture of equal parts of white of egg, white-lead, and glue, forms a strong cement. Or take a very thick solution of gum arabic in water, and stir into it plaster-of-Paris until the mixture becomes a viscous paste. Apply it with a brush to the fractured edges, and stick them together. In three days the article cannot again be broken in the same place. For other preparations for this purpose, see "Cements."

China and Glass Ornaments—Cleaning.

The best material for cleansing either porcelain or glass, is fullers' earth; but it must be beaten into a fine powder, and carefully cleared from all rough or hard particles, which might endanger the polish of the surface. As articles intended solely for ornament are not so highly annealed as others, they should never be washed in water beyond a tepid temperature.

China Crape—To Wash Scarfs, Etc.

If the fabric be good, these articles of dress can be washed as frequently as may be required, and no diminution of their beauty will be discoverable, even when the various shades of green have been employed among other colors in the patterns. In cleaning them, make a strong lather in boiling water; suffer it to cool; when cold or nearly so, wash the scarf quickly and thoroughly, dip it immediately in cold hard water in which a little salt has been thrown (to preserve the colors), rinse, squeeze, and hang it out to dry in the open air; pin it at its extreme edge to the line, so that it may not in any part be

folded together; the more rapidly it dries the clearer it will be.

Chromos—To Clean.

When you clean them use a soft feather brush, or wipe them with soft chamois skin (a drop of oil may restore clearness), or with a fine linen rag very slightly dampened. Always tenderly.

Next, whenever the original varnish coating is dulled, bruised, or rubbed, revarnish it with thin mastie varnish.

Chromos, like oil paintings, should not be hung in a dark room, but in one with diffused light; and never exposed to the direct rays of the sun.

The chromos after water-colors keep and display better when placed under glass, as they lack the protecting cover of the varnish. The larger chromos after oil paintings display, as a general rule, best when framed like original paintings. It is not necessary to put any of these under glass; it is a matter of taste,—preserving them, at the same time, from dust and rough handling.

Chronograms or Chronographs

Are riddles in which the letters of the Roman notation in a sentence or series of words are so arranged as to make up a date. The following is a good example:—

My Day Closed Is In Immortality.

The initials MDCIII give 1603, the year of Queen Elizabeth's death. Sometimes the Chronogram is employed to express a date on coins or medals; but oftener it is simply used as a riddle:—A poet who in blindness wrote; another lived in Charles's reign; a third called the father of English verse; a Spanish dramatist; the scolding wife of Socrates; and the Prince of Latin poets,—their initials give the year of the Great Plague — MDCLXV — 1665: Milton, Dryden, Chaucer, Lope-de-Vega, Xantippe, Virgil. The word comes from Chronos, time, and gramma, a letter.

Cider—To Bottle.

Preparatory to bottling, it should always be examined, to see whether it is clear and sparkling. If not so, it should be clarified, and left for a fortnight. The night previous to bottling the bung should be taken out of the cask, and the filled bottles should not be corked down until the day after; as, if this is done at once, many of the bottles will burst by keeping. The best corks should be used. Champagne bottles are the best for cider. When the cider is wanted for immediate use, or for consumption during the cooler season of the year, a small piece of lump sugar may be put into each bottle before corking it. When intended for keeping, it should be stored in a cool cellar, when the quality will be greatly improved by age.

Cistern—Filtering.

To obtain the best water at all times, it is not enough that the water be well filtered: To illustrate:—A cistern of 2,000 gallons is filled. After some weeks of continued dry weather, the amount is reduced to, say, 1,000 gallons, at which time the quality of the water will have sensibly improved. A shower occurs, pouring into the cistern, say, 300 gallons. The 1,000 gallons is violently mixed with the newly fallen rain, and the result is, the quality of the water is injured for a time, or until sufficient time has elapsed to allow it to settle again.

Again, the process of filtration cannot properly be accomplished in the short time allowed by some devices. Water should be filtered very slowly.

Then, every filtering apparatus should be cleaned out, and all the materials employed thoroughly washed or renewed regularly and somewhat frequently, as required by the character of the roof and the situation of

the house, as regards accumulation cinders, dust, etc.

To accomplish the best results, I would construct a cistern of requisite capacity, above the bottom of the cellar, into which all the water from the roof should be turned. Another cistern of equal capacity, of what is known as the "jug" pattern, should be built below the cellar bottom, having a neck of proper size extending slightly above, and kept closed by a tight cover. Between the two cisterns, construct a box of wood or bricks, say six to ten feet long, and twelve to sixteen inches square, with partitions alternately extending nearly to the top and bottom. Fill this box with the proper filtering materials: broken stone, well washed coarse and fine gravel and sand, charcoal, and, at the outlet, fine sponge.

The stream of water from the receiving cistern should be very small, say one-quarter inch in diameter, which, entering the box at one end, would gently percolate through the mass of filtering materials, and by a small block tin pipe be conveyed to the bottom of the lower cistern, from which it would be pumped as wanted. The flow would be constant, or until the upper cistern was emptied. This box should also be kept closed by a tight cover, which, when lifted, would allow ready access to remove all the filtering materials, to be washed and returned, or, what is better, to be replaced by clean, fresh materials.

The bottom of the upper cistern should be concave, connecting by a pipe and stop-cock with the drain. Occasionally, when nearly exhausted, it could be easily and thoroughly cleaned and rinsed out, the sediment and dirty water escaping by the drain. The bottom of the lower cistern should also be concave, and at intervals the pipe between the two cisterns should be closed, to allow the lower one to be-

come exhausted in order to cleanse that also.

The upper cistern should be covered by a brick arch, or by matched pine plank, made perfectly tight. Otherwise the evaporation from such a body of water will be injurious to both structure and inmates.

The device of making a filter by a brick partition, or wall in the cistern, drawing the water from the side opposite the ingress pipe, is quite effectual for a time. A little reflection, however, will show that the sediment taken from the water remains; either in the pores of the brick, or in the form of a coating on the surface; and that, after a time, it will vitiate its purpose, and become comparatively inoperative and useless.

The objection to this filtering system is the increased expense; and those parties obliged to depend upon a rain water supply, and who, from necessity or choice, prefer the cheapest article, when first cost alone is considered, will not adopt it; but in many places in the country, where persons want permanently pure water, even if obtained at a greater expense, I think no better arrangement has been devised.

The principal value of a filter depends upon keeping it clean; and to continue to use water, month after month, after the filtering materials have become foul, is not consistent with our ideas of cleanliness, and is positively injurious.

The cistern from which the water is used being at a distance below the cellar bottom, the water is kept sufficiently cool, even in hot weather, to be very palatable.

Some persons, not using a filter, adopt the expedient of having two cisterns on the same level, both connected with the pump, using from each alternately, as the other becomes exhausted. This arrangement is a great

improvement upon a single cistern, but will not compare with two, arranged as described above.

The cost of two first-class cisterns, of 2,000 gallons, capacity each, with filter constructed in the most thorough manner, would, in most localities, be less than the cost of a properly constructed well forty feet in depth.

Cities—One Hundred Largest of the Earth.

FIGURES FROM LATEST OFFICIAL CENSUS RETURNS.

London	4,211,056	Lyons.	466,028
New York (Greater)	3,437,202	Madras.	452,518
Paris.	2,536,834	Marscilles.	442,239
Berlin.	1,843,000	Haidarabad	415,039
Chicago.	1,698,575	Munich.	407,307
Canton.	1,600,000	Odessa.	405,041
Tokio, Japan.	1,452,564	Mexico City	402,000
Vienna.	1,364,548	Leipzig	399,963
Philadelphia.	1,293,697	Sydney.	383,390
St. Petersburg.	1,267,023	Cleveland.	381,768
Pekin, estimated.	1,000,000	Shanghai, estimated	380,000
Moscow.	988,614	Breslau.	373,169
Constantinople.	873,560	Leeds	367,505
Calcutta.	861,764	Turin.	355,800
Bombay.	821,764	Kioto, Japan.	353,139
Osaka, Japan.	821,235	Buffalo	352,387
Buenos Ayres.	663,854	San Francisco.	342,782
Warsaw.	638,209	Dresden	336,440
Hamburg.	625,552	Cincinnati.	325,902
Glasgow.	618,052	Sheffield	324,243
St. Louis.	575,238	Pittsburgh	321,626
Cairo, Egypt.	570,062	Cologne.	321,564
Brussels	561,130	Santiago, Chile	320,628
Boston	560,892	Alexandria.	319,766
Naples.	540,393	Lodz, Poland.	315,209
Rio de Janeiro.	522,651	Copenhagen.	312,859
Liverpool.	517,980	Rotterdam.	309,309
Amsterdam	512,953	Lisbon.	301,206
Baltimore.	508,957	Stockholm	295,789
Buda-Pesth	505,763	Palermo	290,951
Manchester, England	505,368	New Orleans.	287,104
Rome.	500,610	Detroit	285,704
Melbourne	490,900	Milwaukee.	285,315
Milan.	481,297	Washington.	278,718
Birmingham, England	478,113	Antwerp.	277,576
Madrid	470,283	Lucknow.	273,028
		Barcelona.	272,481
		Edinburgh	264,796
		Bordeaux.	256,906
		Riga	256,197
		Belfast	255,950
		Bangkok, estimated.	250,000
		Montevideo	249,251
		Kieff	247,432
		Newark, N. J.	246,070
		Dublin.	245,001
		Nagoya, Japan.	244,145
		Genoa.	232,777
		Bucharest	232,000

Frankfort-on-Main	229,279
Bristol, England	221,578
Hong Kong	221,441
Benares	219,467
Montreal	216,650
Bradford, England	216,361
Lille	216,276
Kobe, Japan	215,780
Magdeburg	214,424
Nottingham	213,877
Florence	212,898
Teheran	210,000
Hanover	209,535
Jersey City	206,433
West Ham, England	204,903

Cleanliness.

Nothing can be more agreeable to the senses, more to the honor of the inhabitants, or conducive to their health, than a clean town; nor does anything impress a stranger sooner with a disrespectful idea of any people than its opposite.

It is well known that infectious diseases are caused by tainted air. Everything, therefore, which tends to pollute the air or spread the infection ought with the utmost care to be avoided. For this reason, in great towns, no filth of any kind should be permitted to lie upon the streets. We are sorry to say that the importance of general cleanliness in this respect does by no means seem to be sufficiently understood.

One common cause of putrid and malignant fevers is the want of cleanliness. Those fevers commonly begin among the inhabitants of close, dirty houses, who breathe bad air, take little exercise, eat unwholesome food, and wear dirty clothes. There infection is generally hatched, which spreads far and wide, to the destruction of many. Hence cleanliness may be considered as an object of public attention. It is not sufficient that I be clean myself, while the want of it in

my neighbor affects my health as well as his own.

If dirty people cannot be removed as a common nuisance, they ought at least to be avoided as infectious. All who regard their health should keep at a safe distance, even from their habitations.

In hospitals and other places where great numbers of sick people are kept, cleanliness ought most religiously to be observed. The very smell in such places is often sufficient to make one sick. It is easy to imagine what effect that is likely to have upon the diseased. A person in health has a greater chance to become sick than a sick person has to get well in a hospital or infirmary where cleanliness is neglected.

Cleanliness—Personal.

The want of cleanliness is a fault which admits of no excuse. Where water can be had for nothing, it is surely in the power of every person to be clean.

Frequent washing not only removes the filth which adheres to the skin, but likewise promotes the perspiration, braces the body, and enlivens the spirits. Even washing the feet tends greatly to preserve health. The perspiration and dirt with which these parts are frequently covered cannot fail to obstruct their pores. This piece of cleanliness would often prevent colds and fevers. Were people to bathe their feet and hands in warm water at night, after being exposed to cold or wet through the day, they would seldom experience any of the effects from these causes which often prove fatal.

Change of apparel greatly promotes the secretion from the skin, so necessary to health. When that matter which ought to be carried off by perspiration is either retained in the body or re-absorbed in dirty clothes, it

is apt to occasion fevers and other diseases.

Most diseases of the skin proceed from want of cleanliness. These indeed may be caught by infection, but they will seldom continue long where cleanliness prevails. To the same cause must we impute the various kinds of vermin that infest the human body, houses, etc. These may generally be banished by cleanliness alone. Perhaps the intention of Nature, in permitting such vermin to annoy mankind, is to induce the practice of this virtue.

The brutes themselves set us an example of cleanliness. Most of them seem uneasy, and thrive ill, if they be not kept clean. A horse that is kept thoroughly clean will thrive better on a smaller quantity of food than with a greater where cleanliness is neglected. Even our own feelings are a sufficient proof of the necessity of cleanliness. How refreshed, how cheerful and agreeable does one feel on being washed and dressed; especially when these have been long neglected.

Superior cleanliness sooner attracts our regard than even finery itself, and often gains esteem where the other fails.

Cleanliness—Mohammedan.

It is remarkable that in most eastern countries, cleanliness makes a great part of the religion. The Mohammedan, as well as the Jewish, religion enjoins various bathings, washings, and purifications. No doubt these were designed to represent inward purity; but they are at the same time calculated for the preservation of health. However whimsical these washings may appear to some, few things would seem more to prevent diseases than a proper attention to many of them. Were every person, for example, after handling a dead body, visiting the

sick, etc., to wash before he went into company or sat down to eat, he would run less hazard either of catching the infection himself or communicating it to others.

Clinkers.

Oyster shells on top of a coal fire will cause the clinkers adhering to the sides of the grate or to the fire-brick to drop off. Be liberal with your oyster shells and you will have no trouble with clinkers.

Clocks—To Oil.

To oil clocks use only the very purest oil, purified by a quart of lime water to a gallon of oil in which it has been well shaken, and suffered to stand for three or four days, when it may be drawn off.

Clock—To Make for Twenty-five Cents.

First get a sheet of stout mill-board, such as is used by bookbinders. This will cost from six to ten cents. Get size twenty-seven by twenty-two inches. Draw two lines the longest way, equally distant from the edge and each other. This divides it into three parts of the same size. Now from the top measure off ten inches for the face, and then with your knife partly cut the board through the rest of the lines below the face, and bend them back and glue together by putting a strip of cloth over the edges where they meet. Mark out the face of your clock, and make a hole for the hands. Go to your tinman, and he will make you a funnel-shaped spout, which you must glue on the bottom. Then make a spool-like cone—running to a point on one end and eight inches across on the other. Wind a string on this cone, commencing at the large end, and winding down just as you would a top. Tie to the end a conical ink bottle filled with sand. Make some wooden hands, and put them on the face. Then fill your box, now made, with sand, and when it is

hung up the sand will run out slowly at the bottom, and as the sand goes out the weights lower, and turn the wheel, which makes the hands go around. It will depend upon the size of the hole at the bottom as to how fast it runs. You can paint it, and make it quite an ornament and curiosity in your house.

Clothing—Hints About.

All our garments should be soft and pliable, and of such shape as to be comfortable to the wearer. They should not be warmer than is requisite to preserve the body in a proper temperature. The clothing worn next the skin should be made of substances easily cleaned. Dress should be adapted to the age and constitution of the individual. Young and robust persons require a smaller quantity than those who are delicate or advanced in years. A variety is requisite to suit the difference of temperature in summer and winter. The temperature varies so often and so suddenly during the first five months of the year, that no great change in the character of our clothing should be made till May or June. Light colored clothes are cooler in summer, because they reflect a portion of the sun's rays; and they are warmer in winter, because they do not radiate the heat of the body so rapidly as dark colored clothing. Dark colored clothes are warmest in summer, because the darker the cloth, the more perfectly it absorbs the direct heat of the sun. They are, however, colder in winter than light colored clothing, proving the rapidity with which they absorb the heat from the body.

Clothes—To Brush.

Have a wooden horse to put the clothes on, and a small cane to beat the dust out of them; also a board or table long enough for them to be put their whole length when brushing

them. Have two brushes, one a hard bristle, the other soft; use the harder for the overcoats, and for the others when spotted with dirt. Fine cloth coats should never be brushed with too hard a brush, as it will take off the nap, and make them look bare in a little time. Be careful in the choice of the cane, do not have it too large, and be particular not to hit too hard. Be careful also not to hit the buttons, for it will scratch, if not break, them; therefore a small hand whip is the best to beat with.

If a coat be wet and spotted with dirt, let it be quite dry before brushing; then rub out the spots with the hands, taking care not to rumple it in so doing. If it wants beating, do as before directed, then put the coat at its full length on a board; let the collar be towards the left hand, and the brush in the right. Brush the back of the collar first, between the two shoulders next, and then the sleeves, etc., observing to brush the cloth the same way that the nap goes, which is towards the skirt of the coat. When both sides are properly done, fold them together, then brush the inside, and last of all the collar.

Cloths—A Liquid to Extract Grease From.

Take one peck of lime; add thereto as much water as will dissolve the lime and leave about two gallons of clear water after it has been well stirred and settled. Let it stand about two hours, and then pour the clear liquid into another vessel. Now add to it three ounces of pearlash for every gallon of the liquid, stir it well, and, when settled, bottle it for use. This liquor is to be diluted with water, to suit the strength or delicacy of the color of the cloth. It is applied with a piece of coarse sponge, rubbing out the grease, and applying clear water afterwards.

Clothes—To Renovate.

To warm soft water, four gallons, put in one beef's gall; saleratus, one-half pound. Dissolve. Lay the garment on a bench and scour every part thoroughly by dipping a stiff brush into the mixture; spots of grease and the collar must be done more thoroughly, and longer continued than other parts, and rinse the garment in the mixture by raising up and down a few times, then the same way in a tub of soft cold water; press out the water and hang up to dry; after which it needs brushing the way of the nap and pressing well under a damp cloth.

Beef's gall will set the color on silks, woolen, or cotton—one spoonful to a gallon of water is sufficient for this purpose.

Cloth (or Clothing)—To Render Waterproof.

Close waterproof cloth fabrics, such as glazed oil-cloth, India-rubber, and gutta-percha cloth, are completely water-proof, but do not permit perspiration and the exhaled gases from the skin to pass through them, because they are air tight as well as water tight. Persons who wear air-tight garments soon become faint, if they are undergoing severe exercise, such as that to which soldiers are exposed when on march. A porous, waterproof cloth, therefore, is the best for outer garments during wet weather, for those whose duties or labor cause them to perspire freely. The best way for preparing such cloth is by the process adopted for the tunics of the French soldiers during the Crimean war. It is as follows: Take two and one-fourth pounds of alum and dissolve it in ten gallons of boiling water; then in a separate vessel dissolve the same quantity of sugar of lead in ten gallons of water, and mix the two solutions. The cloth is now well handled in this liquid, until

every part of it is penetrated; then it is squeezed and dried in the air, or in a warm apartment, then washed in cold water and dried again, when it is fit for use. If necessary, the cloth may be dipped in the liquid and dried twice before being washed. The liquor appears curdled, when the alum and lead solutions are mixed together. This is the result of double decomposition, the sulphate of lead, which is an insoluble salt, being formed. The sulphate of lead is taken up in the pores of the cloth, and it is unaffected by rains or moisture, and yet it does not render the cloth air tight. Such cloth is also partially non-inflammable. A solution of alum itself will render cloth, prepared as described, partially waterproof, but is not so good as the sulphate of lead. Such cloth—cotton or woolen—sheds rain like the feathers on the back of a duck.

Clothing—Water-tight.

Balard recommends the application of acetate of alumina for the purpose of rendering cloth impervious to water. The cloth is to be immersed in a mixture of solutions of acetate of lead and sulphate of alumina; by mutual decomposition of the salts, acetate of alumina is produced on the cloth, and when the goods are dried, basic acetate of alumina adheres to the fiber, and thus protects it from the action of moisture. The process is particularly recommended for military goods.

Cloth (Black)—To Clean.

Dissolve one ounce of bicarbonate of ammonia in one quart of warm water. With this liquid rub the cloth, using a piece of flannel or black cloth for the purpose. After the application of this solution, clean the cloth well with clear water, dry and iron it, brushing the cloth from time to time in the direction of the fiber.

Clothes—Balls for Cleaning.

Take some fuller's earth, dried till it crumbles to powder; moisten it with the juice of lemon; add a small quantity of pearlash, work and knead carefully together until it forms a thick paste; make into balls, and dry them in the sun. Moisten the spot on clothes with water, then rub it with the ball. Wash out the spot with clean water.

Cloth (Enameled)—To Make.

The foundation of the article is cotton cloth of the best quality, made expressly for this manufacture. It varies in texture and width according to the kind of goods for which it is intended. The cloth is taken from the bale and wound upon a large iron cylinder, and looks in that position very much like huge rolls of home-made cloth. It is now ready to receive its first coat; so it is slowly passed through the machine, across and between the huge iron cylinders, from the smaller of which at the top, it receives its first coating of composition—a black, disagreeable-looking substance, composed of oil, lamp-black, resin, and other ingredients, boiled together, till about the consistency of melted tar. From between the cylinders, dressed in its black coat, the cloth is carried to and wound upon a huge wooden frame, resembling in shape the old-fashioned reel. By an arrangement of spokes upon the arms of this huge wheel, each layer of cloth is kept separate, so that no two portions of the cloth will come in contact. The frame, with its contents when filled, is passed into what is called the heater, an apartment kept at a high temperature, for the purpose of drying in the coating or composition. After remaining in the heater a sufficient length of time to complete the drying process, it is removed and passed through the hands of workmen who make all the rough places smooth. It is laid on long tables, and the work-

men alternately sprinkle with water and rub with pumice-stone, till the whole surface is made perfectly smooth. The cloth is then wound upon the cylinder again, as at first, and passed through the machine to the huge reels, and again under the pumice-stone. The cloth is passed through the machine five times, or till the required thickness has been laid on. After the last scrubbing down, the fabric is taken to another department, thoroughly varnished, and again passed through the heater. It is now represented as a piece of cotton-cloth, with a thick, shining coat of black, very much resembling patent leather. But it has not yet received its leather finish; so in another apartment it is passed through the enamel-machine, which consists of another set of huge rollers, one of which covers its surface with regular indentations resembling the grain of leather. The cloth is now carefully measured, and rolled up in packages of suitable size, put up in boxes, and is ready for the market.

Clothes Closets—Moth Infested.

Closets that have become infested with moths, should be well rubbed with a strong decoction of tobacco, and repeatedly sprinkled with spirits of camphor.

Coachmakers—Hints to.

A correspondent of the *Coachmakers' Journal* says: In plugging screw holes we glue the edge of the plug; put no glue in the hole. By this means the surplus glue is left on the surface, and if the plug does not hit the screw it will seldom show. We set the heads of brads well in, then pass a sponge of hot water over them, filling the holes with hot water. This brings the wood more to its natural position, and closes, by degrees, over the head of the brad. When dry, sandpaper off and paint, and the putty will not hit the head of

the brad; if it does, it will surely show. The brad must have a chance to expand when exposed to the heat of the sun, and not hit the putty; if it does it will force the putty out. We have had no trouble with brad heads or plugs since we adopted this practice.

Coal—Effect of Exposure on.

Coal deteriorates rapidly from exposure to the weather. According to scientific experiments, coal exposed to the weather in heaps during a period of nine months loses fifty per cent. of its value as fuel. It undergoes a process of slow combustion, taking up oxygen and giving off the volatile products of oxidation—air and moisture playing the principal part, and warmth promoting it; the valuable combustible ingredients are lost, and the injurious ones, as sulphur, oxygen and ash, are relatively increased. Neither wood nor coal can bear long exposure to the elements without losing a large share of its value for fuel.

Coal Fire—To Make.

The art of making and maintaining a coal fire properly is possessed by but few. We believe that there would be a sensible diminution in the number of domestic quarrels and soured tempers, if a knowledge of it were more general. Husbands would not have to growl and scold over so many late dinners, nor wives fret themselves to skin and bone over obstinate fires that will neither bake, roast nor boil.

There are many faults in the usual construction of a coal fire. A common fault is to use too coarse wood for kindling, and too much of it. This, while it generally succeeds in lighting the coal, leaves a bed of ashes below the coal, which interferes with the draft, unless raked out. The wood should be of some rapidly burning variety, which gives a quick and high heat, and should be split fine. It should be so placed

that the coal will remain on the top of it, and not fall through to the grate, leaving the kindling on the top of any part of the coal.

A common mistake is to use too large sized coal. A good rule, where stoves or furnaces have a good draft, is to use coal as small as can be used without inconvenience from its sifting too freely through the grate.

Grates should have their bars closely set for stoves that are cleaned out daily, and have fires lighted in them each morning, while those which are intended to have fire kept in them continuously for days and weeks will not admit of fine grates, on account of the accumulation of ashes and small clinkers.

There is much difference in coal in regard to the formation of clinkers. These are nothing but vitrified or partially vitrified earthy matters, and only can form when a high heat is maintained; they are apt to be troublesome when there is too great draft. A coal stove or furnace should, therefore, be so constructed that its draft can be perfectly controlled. The bottom draft should admit of being closed airtight, as nearly as is possible to make it, and there ought always to be provision made for a top draft.

If, however, the draft of a chimney should be so strong that air in too great quantities is drawn in at the bottom when the dampers are closed, a damper in the pipe, which will close it partially, must be employed, though in sluggish chimneys such a damper is apt to force the gases of combustion into the room, and therefore it ought always to be avoided when possible.

The practice of putting ashes on the top of a fire to keep it, is very productive of clinkers, although it answers very well in other respects. Damp coal screenings are better, and may be economically burned in this manner. If a

coal fire gets very low, the quickest way to extinguish it is to rake it at the bottom. To preserve a fire under such circumstances, a little coal should be placed on the fire, and when it has caught more may be added, and the raking deferred until it has got well ignited.

When the fire-bricks have become burdened with clinkers which have fused and adhered, they may be cleaned by throwing oyster or clam shells into the fire-box when the fire is very hot, and allowing the fire to go out. The clinkers will generally cleave off without the use of much force the next morning. From two quarts to half a peck will be sufficient for most stoves, and the operation can be repeated if some of the clinkers still adhere.

Cockroaches and Beetles.

To Destroy.—Strew the roots of black hellebore, at night, in the places infested by these vermin, and they will be found in the morning dead, or dying. Black hellebore grows in marshy grounds, and may be had at the drug store.

Another.—Put about a quart of water sweetened with molasses in a tin wash basin or smooth glazed china bowls. Set it at evening in a place frequented by the bugs. Around the basin put an old piece of carpet that the bugs can have easy access to the top. They will go down in the water, and stay until you come.

Another.—Take pulverized borax 4 parts, flour 1 part, mix intimately and distribute the mixture in eupboards which are frequented by the roaches, or blow it, by means of bellows, into the holes or cracks that are infested by them.

Another.—Scatter a handful of fresh cucumber parings about the house.

Another.—Take carbolic acid and powdered camphor in equal parts; put

them in a bottle; they will become fluid. With a painter's brush of the size called a sash-tool, put the mixture on the cracks or places where the roaches hide; they will come out at once. Then kill.

Another.—Mix up a quantity of fresh burned plaster of Paris (gypsum, such as is used for making molds and ornaments), with wheat flour and a little sugar and distribute on shallow plates and box boards, and place in the corners of the kitchen and pantry where they frequent. In the darkness they will feast upon it. Whether it interferes with their digestion or not, is difficult to ascertain, but after three or four nights' renewal of the preparation, no cockroaches will be found on the premises.

Cockroaches—To Kill.

A teacupful of well-bruised plaster of Paris, mixed with double the quantity of oat meal to which a little sugar may be added. Strew it on the floor, or in the chinks where they frequent.

Speaking of these insects, Josh Billings says: "The cockroach is one of the luxuries of civilization. Their food seems to consist not so much of what they eat as what they can get into; and often finding them dead in the soup, at my boarding house, I have come to the painful conclusion that the cockroach can't swim, but that he can float for a long time."

Coins—Values of Foreign.

The following estimate, by the Director of the Mint, of the values of Foreign Coins, is proclaimed by the Secretary of the Treasury, in pursuance of the provisions of section 25 of the act of August 28, 1894, to be the values of such coins in terms of the money of account of the United States, to be followed in estimating the value of all foreign merchandise exported to the United States on or after

Jan. 1, 1900, expressed in any of such metallic currencies:

COUNTRY	STANDARD	MONETARY UNIT	VALUE
Argentina Rep.	G'd & silv.	Peso.....	D. C. M. 0 90 5
Austria-H'gary	Gold.....	Crown.....	0 20 3
Belgium.....	G'd & silv.	Franc.....	0 19 3
Bolivia.....	Silver.....	Boliviano.....	0 42 7
Brazil.....	Gold.....	Milreis.....	0 54 6
Brit'h America	Gold.....	Dollar.....	1 0 0
Costa Rica.....	Gold.....	Colon.....	0 46 5
Chili.....	Gold.....	Peso.....	0 36 5
China.....	Silver.....	Tael (Shanghai) Halkwan (Cust'ms)	0 63 1 0 70 3
Colombia.....	Silver.....	Peso.....	0 42 7
Cuba.....	G'd & silv.	Peso.....	0 92 6
Denmark.....	Gold.....	Crown.....	0 26 8
Ecuador.....	Silver.....	Sucre.....	0 42 7
Egypt.....	Gold.....	P'd. 100 piast's	4 91 3
Finland.....	Gold.....	Mark.....	0 19 3
France.....	G'd & silv.	Franc.....	0 19 3
German Emp.	Gold.....	Mark.....	0 23 8
Great Britain..	Gold.....	Pound Sterling	4 86 6 1/2
Greece.....	G'd & silv.	Drachma.....	0 19 3
Haiti.....	G'd & silv.	Gourde.....	0 96 5
India.....	Silver.....	Rupee.....	0 20 3
Italy.....	G'd & silv.	Lira.....	0 19 3
Japan.....	Gold.....	Yen.....	0 49 8
Liberia.....	Gold.....	Dollar.....	1 0 0
Mexico.....	Silver.....	Dollar.....	0 46 4
Netherlands..	G'd & silv.	Florin.....	0 40 2
Newfoundland	Gold.....	Dollar.....	1 1 4
Norway.....	Gold.....	Crown.....	0 26 8
Persia.....	Silver.....	Kran.....	0 2 0
Peru.....	Silver.....	Sol.....	0 42 7
Portugal.....	Gold.....	Milreis.....	1 8 0
Russia.....	Gold.....	Rouble.....	0 51 5
Spain.....	G'd & silv.	Peseta.....	0 19 3
Sweden.....	Gold.....	Crown.....	0 26 8
Switzerland..	G'd & silv.	Franc.....	0 19 3
Turkey.....	Gold.....	Piaster.....	0 4 4
Uruguay.....	Gold.....	Peso.....	1 3 4
Venezuela.....	G'd & silv.	Bolivar.....	0 19 3

Coins—Impressions from.

Melt a little isinglass-glue with brandy, and pour it thinly over the medal, etc., so as to cover its whole surface; let it remain on for a day or two, till it has thoroughly dried and hardened, and then take it off, when it will be fine, clear, and hard, and will present an excellent impression of the coin. It will also resist the effects of damp air, which occasions other kinds of glue to soften and bend if not prepared in this way.

Colors—To Mix and Use.

Priming.—Quite too little attention is paid to this department. The color is usually mixed up too thin and put on too heavy. The reverse is much the best. Let the priming be as thick as will spread easily, and then be well rubbed out under the brush. Litharge is the only drying necessary in priming. All work, inside or out, may be primed the same.

Puttying.—After the priming, all work should have the nail-heads and cracks puttied up. It should be done with a putty-knife; puttying up with the fingers is a barbarous practice, and does not fill the holes well.

Sand-Papering and dusting should be done before the puttying; being done afterwards is apt to dish out the puttied places.

Second Coat (Outside).—Mix with raw oil and use it as thick as it will spread easily. After the work is all covered, it should be cross-smoothed till it has an even surface, and then finished lengthwise, with long sweeps of the brush, pressing lightly.

Third Coat.—Made a little thinner than for the second coat and rubbed out as much as possible, cross-smoothed, and finished with the tip of the brush very lightly, so as not to show the brush marks.

Second Coat. (Inside).—Mixed as thick as it will work, with equal parts of raw oil and turpentine. Particular care should be taken to rub this out well, cross-smoothing and finishing with the tip of the brush; else the color will lie in ridges, which the next coat will not hide.

Third Coat.—Mixed with three parts turpentine and one of raw oil, rubbed out thoroughly and smoothed carefully so as to show no brush marks.

Fourth Coat, Flatting.—Mixed with all turpentine thin enough so that it may be spread before it sets. Spread over quickly, without cross-smoothing; finish lengthwise with light sweeps of the tip of the brush; three or four strokes will be as much as one can do before it sets. Square up and finish each piece of work before beginning another.

Drawn Flatting.—Mix up the ground lead with turpentine, nearly as thin as for flatting. Let it stand till the lead settles and the oil and turpentine rise

to the top. Pour it off and mix again, and repeat the operation till that which rises to the top is clear turpentine. By this process the oil in which the lead is ground is entirely drawn out and the lead is mixed with turpentine. This color, however, is quite different from what it would be if the lead had been ground in turpentine. It is more tenacious, and flows better.

Much care must be taken to spread this on thickly and evenly. The room must be kept close, and free from any draught of air, as the color sets as fast as put on. This is used only as a fourth coat.

Polish White.—This chaste and durable finish requires the zinc white to do it properly. It is made by mixing the zinc white with white varnish.

Common Method.—After priming and second-coating in the usual way with lead, finish with the polish white.

Best Method.—Put on two coats, as above, and then spread on several coats of yellow ochre, turpentine, and japan, with a little litharge. When dry, rub smooth and level with pumice stone, then put on one coat of polish white with pumice stone, then a coat of polish white, and finish with a flowing coat of white varnish, in which is mixed some of the zinc white.

Remarks.—When work is to be finished with a gloss, the previous coat should be a dead surface; when it is to be flattened, the previous coat should have a degree of gloss.

Lead is the white referred to in the above descriptions, yet the rules given for mixing may be applied to all other colors, except that the darker colors are generally finished with a gloss, inside or out. They require no turpentine only when they are to be varnished.

Oil dries with a glossy, turpentine with a flat, surface.

It is a wrong idea to put on heavy coats of paint; the more it is rubbed

out, the better will the work look and wear. Each coat should stand two or three days before receiving another coat.

Color needs more drying in winter than in summer. Outside work lasts longer if painted in cold weather, as not so much of the liquid is evaporated, and a heavier body is thus dried upon the surface.

Litharge or japan is a good drier for outside work, and for priming in the inside, or for dark colors; but sulphate of zinc is only fit for the last coats on the inside, though sugar of lead is used. Either of them may be dissolved in water, and stirred into the color.

Transparent colors will work more freely, and spread on with an even flow, by being mixed with raw oil and japan, with a little water stirred in.

In mixing thick colors, the liquid should be added gradually, else the lumps will not be thoroughly broken.

Color-Blindness.

Has been divided into three grades: (a) Inability to discern any color, so that light and shade (white and black) only are noticed. (b) Inability to distinguish shades of the more composite colors, as browns, greys, neutral tints. (c) Inability to distinguish between the primary colors, red, blue, and yellow, or between them and their secondaries, green, purple, orange, and brown. Red is the most difficult and yellow the most easy color which the color-blind have to distinguish. Color blindness is most common among men, and it does not follow that there is any defect in the eyesight, apart from it. The cause of it is in the sensorium, not the visual organ.

Color-Printing

Is produced (1) in the chromolithographic form when a copy of the picture is transferred to as many stones as there are colors in the origi-

nal, and then it is again transferred to paper.

Color—To Restore.

It is well known that when the color on a fabric has been destroyed by acid, ammonia is applied to neutralize the same. But it is not so well known that after the application of ammonia, chloroform will, in almost all cases, restore the original color. Chloroform will also remove paint from a garment when almost everything else fails.

Dresses, Etc.—To Clean.

Four ounces of soft soap, four ounces of honey, the white of an egg, and a wineglass full of gin; mix well together, and scour the article with a rather hard brush thoroughly; afterwards rinse it in cold water, leave to drain, and iron whilst quite damp.

Complexion and Colors.

The pink of the complexion is brought out by a green setting in dress or bonnet; and any lady who has a fair complexion that admits of having its rose tint a little heightened may make effective use of the green color; but it should be a delicate green, since it is of importance to preserve harmony of tone. When there is in the face a tint of orange mixed with brown, a brick-red hue will result from the use of green; if any green at all be used in such a case it should be dark. But for the orange complexion of a brunette, there is no color superior to yellow. This imparts violet to a fair skin and injures its effect. A skin more yellow than orange has its yellow neutralized by the suggestion of the complement, and a dull white effect imparted. The orange skin, however, has its yellow neutralized, and the red left, so that the freshness of complexion is increased in dark-haired beauties. Blue imparts orange, which enriches white complexions and light fresh tints; it also, of course, improves the hair of yellow blondes. Blue,

therefore, is the standard color for a blonde, or yellow for a brunette. But the brunette who has already too much orange in her face must avoid setting it in blue. Orange suits nobody. It whitens a brunette, but that is scarcely a desirable effect, and it is ugly. Red, unless when it is of a dark hue, to increase the effect of whiteness by contrast of tone, is rarely suitable in any close neighborhood to a lady's skin. Rose red destroys the freshness of a good complexion; it suggests green.

Concrete (Gravel)—For Houses.

This is the best building material in the world. Where gravel is abundant, it is four times cheaper than wood, six times cheaper than stone, and immensely superior to either. Proportions for mixing: To eight barrows of slaked lime well deluged with water, add fifteen barrows of sand (do not use river or beach sand, as I have observed this will absorb damp); mix these to a creamy consistency, and then add sixty barrows of coarse gravel, which must be worked well and completely. You can throw stones into this mixture of any shape or size, to nine or ten inches in diameter. Form molds for the walls of the house by fixing boards horizontally against upright standards, which must be immovably braced, so that they will not yield to the immense pressure of the material as it settles; set the standards in pairs around the building where the walls are to stand, from six to eight feet apart, and so wide that the inner space shall form the thickness of the wall. Into the molds thus formed throw the concrete material as fast as you choose, and the more promiscuous the better. In a short time the material will get as hard as the solid rock. If the gravel is free of dirt, the sand also clean, and the weather dry, the walls can be raised one foot each day, if you have help to do that amount of labor.

Some prefer to make the gravel and sand into mortar and press it into bricks, and then lay it into walls; but the wall must be stronger if laid up solid in board frames made to raise up as required.

Conduct and Manners.

Ceremonies.—These are in themselves superficial; yet a man of the world should know them. They are the outworks of manners and decency, which would be too often broken in upon, if it were not for that defence which keeps the enemy at a proper distance. It is for that reason we always treat fools and coxcombs with great ceremony, true good-breeding not being a sufficient barrier against them. Books on etiquette are useful, inasmuch as they expound the laws of polite society. Experience alone, however, can give effect to the precise manner in which those laws are required to be observed.

Choice of Friends.—Dr. Blair has said: "We should ever have it fixed in our memories, that by the character of those whom we choose for our friends our own character is likely to be formed, and will certainly be judged by the world. We ought, therefore, to be slow and cautious in contracting intimacy; but when a virtuous friendship is once established, we must consider it as a sacred engagement."

Rules of Conduct.—The following rules of conduct were drawn up by the celebrated Quakeress, Mrs. Fry, who combined in her character and conduct all that is truly excellent in woman.

Never lose any time. I do not think that time lost which is spent in amusement or recreation some part of each day; but always be in the habit of being employed.

Never err the least in truth.

Never say an ill thing of a person when thou canst say a good thing of him; not only speak charitably, but feel so.

Never be irritable or unkind to anybody. —

Never indulge thyself in luxuries that are not necessary.

Do all things with consideration; and when thy path to act right is most difficult, feel confidence in that Power alone which is able to assist thee, and exert thine own powers as far as they go.

The Art of Being Agreeable.—The true art of being agreeable is to appear well pleased with all the company, and rather to seem well entertained with them than to bring entertainment to them. A man thus disposed, perhaps, may not have much learning nor any wit; but if he has common sense and something friendly in his behavior, it conciliates men's minds more than the brightest parts without this disposition; and when a man of such a turn comes up to old age he is almost sure to be treated with respect. It is true, indeed, that we should not dissemble and flatter in company; but a man may be very agreeable, strictly consistent with truth and sincerity, by a prudent silence where he cannot concur, and a pleasing assent where he can. Now and then you meet a person so exactly formed to please, that he will gain upon every one that hears or beholds him; this disposition is not merely the gift of nature, but frequently the effect of much knowledge of the world, and a command over the passions.

Personal Manners.—Artificial manners, and such as spring from good taste and refinement, can never be mistaken, and differ as widely as tinsel and gold. How captivating is gentleness of manner derived from true humility, and how faint is every imitation! That suavity of manner which renders a real gentlewoman courteous to all, and careful to avoid giving offence, is often copied by those who merely subject themselves to certain rules of etiquette;

but very awkward is the copy. Warm professions of regard are bestowed on those who do not expect them, and the esteem which is due to merit appears to be lavished on every one alike. And as true humility, blended with a right appreciation of self-respect, gives a pleasing cast to the countenance, so from a sincere and open disposition springs that artlessness of manner which disarms all prejudice. Feeling, on the contrary, is ridiculous when affected, and even when real, should not be too openly manifested. Let the manners arise from the mind, and let there be no disguise for the genuine emotions of the heart.

Avoid Intermeddling with the Affairs of Others.—This is a most common fault. A number of people seldom meet but they begin discussing the affairs of some one who is absent. This is not only uncharitable, but positively unjust. It is equivalent to trying a cause in the absence of the person implicated. In our criminal code a prisoner is presumed to be innocent until he is found guilty. Society, however, is less just and passes judgment without hearing the defence. Depend upon it as a certain rule that the people who unite with you in discussing the affairs of others will proceed to your affairs and conduct in your absence.

Be Consistent in the Avowal of Principles.—Do not deny to-day that which you asserted yesterday. If you do, you will soon stultify yourself, and your opinions will soon be found to have no weight. You may fancy that you gain favor by subserviency; but so far from gaining favor, you lose respect.

Avoid Falsehood.—There can be found no higher virtue than the love of truth. The man who deceives others must himself become the victim of morbid distrust. Knowing the deceit of his own heart, and the falsehood of his own tongue, his eyes must be always

filled with suspicion, and he must lose the greatest of all happiness—confidence in those who surround him.

Avoid Manifestations of Ill-temper.—Reason is given for man's guidance. Passion is the tempest by which reason is overthrown. Under the effects of passion, man's mind becomes disordered, his face disfigured, his body deformed. A moment's passion has frequently cut off a life's friendship, destroyed a life's hope, embittered a life's peace, and brought unending sorrow and disgrace. It is scarcely worth while to enter into a comparative analysis of ill-temper and passion; they are alike discreditable, alike injurious, and should stand equally condemned.

Avoid Pride.—If you are handsome, God made you so; if you are learned, some one instructed you; if you are rich, God gave you what you own. It is for others to perceive your goodness, but you should be blind to your own merits. There can be no comfort in deeming yourself better than you really are; that is self-deception. The best men throughout all history have been the most humble.

Affectation a Form of Pride.—It is, in fact, pride made ridiculous and contemptible. Some one writing upon affectation has remarked as follows:

"If anything will sicken and disgust a man it is the affected, mincing way in which some people choose to talk. It is perfectly nauseous. If these young jackanapes who screw their words into all manner of diabolical shapes could only feel how perfectly disgusting they were, it might induce them to drop it. With many it becomes such a confirmed habit that they cannot be taught to talk in a plain, straightforward, manly way. Do, good people, pray do, talk in your natural tone, if you don't want to be utterly ridiculous and contemptible."

Avoid Vulgarity in manner, in speech, and in correspondence. To conduct yourself vulgarly is to offer offence to those who are around you; to bring upon yourself the condemnation of persons of good taste; and to incur the penalty of exclusion from good society. Thus, east among the vulgar, you become the victim of your own error.

Avoid Swearing.—An oath is but the wrath of a perturbed spirit. It is mean. A man of high moral standing would rather treat an offence with contempt than show his indignation by an oath. It is vulgar, altogether too low for a decent man. It is cowardly, implying a fear either of not being believed or obeyed. It is ungentlemanly. A gentleman, according to Webster, is a genteel man—well-bred, refined. It is indecent, offensive to delicacy, and extremely unfit for human ears. It is foolish. "Want of decency is want of sense." It is abusive—to the mind which conceives the oath, to the tongue which utters it, and to the person at whom it is aimed. It is contemptible, forfeiting the respect of all the wise and good. It is wicked, violating the Divine law, and provoking the displeasure of Him who will not hold him guiltless who takes His name in vain.

Be a Gentleman.—Moderation, decorum, and neatness distinguish the gentleman; he is at all times affable, diffident, and studious to please. Intelligent and polite, his behavior is pleasant and graceful. When he enters the dwelling of an inferior, he endeavors to hide if possible, the difference between their ranks of life; ever willing to assist those around him, he is neither unkind, haughty, nor overbearing. In the mansions of the rich, the correctness of his mind induces him to bend to etiquette, but not to stoop to adulation; correct principle cautions him to avoid the gaming-table, inebrie-

ty, or any other foible that could occasion him self-reproach. Gratified with the pleasures of reflections, he rejoices to see the gayeties of society, and is fastidious upon no point of little import. Appear only to be a gentleman, and its shadows will bring upon you contempt; be a gentleman, and its honors will remain even after you are dead.

The Happy Man or True Gentleman.

How happy is he born or taught,
That serveth not another's will;
Whose armour is his honest thought,
And simple truth his only skill:
Whose passions not his masters are,
Whose soul is still prepared for death,
Not tied unto the world with care
Of prince's car, or vulgar breath:
Who hath his life from rumors freed:
Whose conscience is his strong retreat,
Whose state can neither flatterers feed,
Nor ruin make oppressors great:
Who God doth, late and early, pray
More of His grace than gifts to lend,
And entertains the harmless day
With a well-chosen book or friend.
This man is freed from servile bands,
Of hope to rise or fear to fall;
Lord of himself, though not of lands,
And having nothing, yet hath all.

—Sir Henry Wotton, 1530.

Be Honest.—Not only because "honesty is the best policy", but because it is a duty to God and to man. The heart that can be gratified by dishonest gains; the ambition that can be satisfied by dishonest means; the mind that can be devoted to dishonest purposes, must be of the worst order.

Avoid Idleness.—It is the parent of many evils. Can you pray, "Give us this day our daily bread," and not hear the reply, "Do thou this day thy daily duty"?

Avoid Telling Idle Tales, which is like shooting arrows in the dark: you know not into whose heart they may fall.

Avoid Self-praise, extolling your own works, and proclaiming your own deeds. If they are good, they will proclaim themselves; if bad, the less you say of them the better.

Avoid Envy, for it cannot benefit you nor can it injure those against whom it is cherished.

Avoid Disputation for the mere sake of argument. The man who disputes obstinately, and in a bigoted spirit, is like the man who would stop the fountain from which he should drink. Earnest discussion is commendable; but factious argument never yet produced a good result.

Be Kind in Little Things.—The true generosity of the heart is more displayed by deeds of minor kindness than by acts which may partake of ostentation.

Be Polite.—Politeness is the poetry of conduct—and, like poetry, it has many qualities. Let not your politeness be too florid, but of that gentle kind which indicates a refined nature.

Be Sociable.—Avoid reserve in society. Remember that the social elements, like the air we breathe, are purified by motion. Thought illumines thought, and smiles win smiles.

Be Punctual.—One minute too late has lost many a golden opportunity. Besides which, the want of punctuality is an affront offered to the person to whom your presence is due.

Be Hearty in your salutations, discreet and sincere in your friendships.

Behave, even in the presence of your relatives, as though you felt respect to be due to them.

In Society never forget that you are but one of many. Prefer to listen rather than talk.

Pry Not into Letters that are not your own.

Pay Unmistakable Respect to ladies everywhere, carefully avoiding foppery and silly flirtation.

In Public Places be not too conscious of your own rights, but find pleasure in making concessions.

Speak Distinctly, look at the person to whom you speak, and when you have spoken, give him an opportunity to reply.

Avoid Drunkenness as you would a curse; and modify all appetites, especially those that are acquired.

Dress Well, but not superfluously; be neither like a sloven, nor like a stuffed model.

Study Personal Cleanliness.—Let the nails, the teeth, and, in fact, the whole system receive salutary and careful attention at the toilet—not elsewhere.

Avoid Displaying excess of jewelry. Nothing looks more effeminate upon a man.

Every one of these suggestions may be regarded as the center of many others, which the earnest mind cannot fail to discover.

A Few Words on Words.—Soft words soften the soul. Angry words are fuel to the flame of wrath, and make it blaze more freely. Kind words make other people good natured. Cold words freeze people, and Hot words scorch them, and Bitter words make them bitter, and Wrathful words make them wrathful. There is such a rush of all other kinds of words in our days, that it seems desirable to give kind words a chance among them. There are Vain words, and Idle words, and Hasty words and Spiteful words, and Silly words, and Empty words, and Profane words, and Boisterous words, and Warlike words. Kind words also produce their own image on men's souls, and a beautiful image it is. They smooth, and quiet, and comfort the hearer. They shame him out of his sour and morose and unkind feelings. We have not yet begun to use kind words in such abundance as they ought to be used.

Gossiping.—If you wish to cultivate a gossiping, meddling, censorious spirit in your children, be sure when they come home from church, a visit, or any other place where you do not accompany them, to ply them with questions concerning what everybody wore, how everybody looked, and what everybody said and did; and if you find anything in this to censure, always do it in their hearing. You may rest assured, if you pursue a course of this kind, they will not return to you unladen with intelligence; and rather than it should be uninteresting, they will by degrees learn to embellish it in such a manner as shall not fail to call forth remarks and expressions of wonder from you. You will, by this course, render the spirit of curiosity, which is so early visible in children, and which, if rightly directed, may be made the instrument of enriching and enlarging their minds, a vehicle of mischief which will serve only to narrow them. (See Etiquette.)

Conversation—Hints on.

There are many talkers, but few who know how to converse agreeably. Speak distinctly, neither too rapidly nor too slowly. Accomodate the pitch of your voice to the hearing of the person with whom you are conversing. Never speak with your mouth full. Tell your jokes and laugh afterwards. Dispense with superfluous words—such as “Well, I should think,” etc.

The Woman who wishes her conversation to be agreeable will avoid conceit or affectation, and laughter which is not natural and spontaneous. Her language will be easy and unstudied, marked by a graceful carelessness which at the same time never oversteps the limits of propriety. Her lips will readily yield to a pleasant smile: she will not love to hear herself talk; her tones will bear the impress of sincerity, and her eyes kindle with animation as

she speaks. The art of pleasing is, in truth, the very soul of good breeding; for the precise object of the latter is to render us agreeable to all with whom we associate—to make us, at the same time, esteemed and loved.

We need scarcely advert to the rudeness of interrupting any one who is speaking, or to the impropriety of pushing, to its full extent, a discussion which has become unpleasant.

If you feel your Intellectual Superiority to any one with whom you are conversing, do not seek to bear him down; it would be an inglorious triumph, and a breach of good manners. Beware too, of speaking lightly of subjects which bear a sacred character.

It is a common Idea that the art of writing and the art of conversation are one; this is a great mistake. A man of genius may be a very dull talker.

The Two Grand Modes of making your conversation interesting, are to enliven it by recitals calculated to affect and impress your hearers, and to intersperse it with anecdotes and smart things. Count Antoine Rivarol, who lived from 1757 to 1801, was a master of the latter mode.

Conundrums.

These are simple catches, in which the sense is playfully cheated, and are generally founded upon words capable of double meaning. The following are examples:

Where did Charles the First's executioner dine, and what did he take?

He took a chop at the King's Head.

What is majesty stripped of its externals?

It is a jest. (The *ma* and the *y*, externals, are taken away.)

Why is hot bread like a caterpillar?

Because it is the grub that makes the butter fly.

Why did the accession of Victoria throw a greater damp over England than the death of King William?

Because the King was missed (mist) while the Queen was reigning (raining).

Why should a gouty man make his will?

To have his legatees (leg at ease).

Why are bankrupts more to be pitied than idiots?

Because bankrupts are broken, while idiots are only cracked.

Why is the treadmill like a true convert?

Because its turning is the result of conviction.

Why are sugar-plums like race-horses?

Because the more you lick them the faster they go.

Why is a dog's tail like the heart of a tree?

Because it's farthest from the bark.

Why should an alderman wear a tartan waistcoat?

To keep a check on his stomach.

Why are journalists like chickens?

Because they have to scratch for a living.

What was the difference between Noah's Ark and Joan of Arc?

One was made of gopher wood and the other Maid of Orleans.

Copal—To Dissolve in Alcohol.

Copal, which is called gum copal, but which is not, strictly, either a gum or a resin, is the hardest and least changeable of all substances adapted to form varnishes by their dissolution in spirit, or essential, or fat oils. It therefore forms the most valuable varnishes; though we shall give several receipts where it is not employed, which form cheaper varnishes, sufficiently good for many purposes, adding only the general rule, that no varnish must be expected to be harder than the substance from which it is made.

To dissolve copal in alcohol, dissolve half an ounce of camphor in a pint of alcohol; put it into a circulating glass,

and add four ounces of copal in small pieces; set it in a sand-heat, so regulated that the bubbles may be counted as they rise from the bottom, and continue the same heat till the solution is completed.

The process above mentioned will dissolve more copal than the menstruum will retain when cold. The most economical method will therefore be, to set the vessel which contains the solution by for a few days, and, when it is perfectly settled, pour off the clear varnish, and leave the residue for future operations.

The solution of copal thus obtained is very bright. It is an excellent varnish for pictures and would, doubtless, be an improvement in japanning, where the stoves used for drying the varnished articles would drive off the camphor, and leave the copal clear and colorless in the work.

Copal-lacquer is generally prepared by carefully melting copal, adding linseed oil varnish, and afterwards oil of turpentine. By Hoedfield's process (patented in France) twice the amount of oil of turpentine that generally is taken is used to procure a more complete solution of the copal, and to obtain the lacquer clearer and more colorless. Air is then passed into the mixture for some time, when the oxygen, under the influence of the oil of turpentine becomes ozonized, and, acting upon the oil, hastens its drying. As soon as the oxidation is thought sufficient, half of the oil of turpentine is distilled off; the remaining lacquer contains, therefore, not more of the oil than ordinary prepared lacquer, but it dries quicker and is more colorless. The distilled oil of turpentine is greatly superior for the preparation of fresh portions of the lacquer, on account of the ozone it still contains, and is used solely for this purpose.

Copper Castings—Dense and Flexible

Are obtained by adding cryolite and sugar of lead to the copper after it is melted. The proportions are as follows: Two pounds of pulverized cryolite and $8\frac{3}{4}$ ounces of sugar of lead to 200 pounds of copper; a further addition of 2 pounds of borax being also advisable. The quantities of the additions may be varied according to circumstances. The mixture of cryolite and sugar of lead, with or without borax, is added after the copper is melted. When the compound is entirely melted, which will be the case in 10 to 15 minutes, the melted copper is poured into the mold.

Copper and Brass (Polished)—To Clean.

Copper tea-kettles, boilers, and other household articles having polished surfaces should not be allowed to get rusty, as rust will destroy more of the metal than is used up by the ordinary wear of the utensils. If the surface be rubbed but a little every day, the labor of keeping them bright will be very light. In case a rust has formed on the surface, apply a solution of oxalic acid, which, well rubbed over tarnished copper or brass, will soon remove the tarnish, rendering the metal bright. The acid must be washed off with water, and the surface rubbed with whitening and soft leather. A mixture of muriatic acid and alum, dissolved in water, imparts a golden color to brass articles that are steeped in it for a few seconds. To give a finer polish, go over the surface of the metal with rotten-stone and sweet oil; then rub off with a piece of cotton flannel and polish it with soft leather.

Copper Powder.

This is prepared by dissolving filings or slips of copper with nitrous acid in a receiver. When no more copper

dissolves, the slips are to be removed; or, if filings be employed, the solution is to be poured off from what remains undissolved. Small bars are then put in, which will precipitate the copper-powder from the saturated acid; and, the liquid being poured from the powder, this is to be washed clean of the crystals by repeated waters.

Copper—To Silver.

Silver dust (fine), 1 ounce; common salt and sal ammoniac, of each 4 ounces; corrosive sublimate, $\frac{1}{4}$ of an ounce. Mix, adding a little warm water to form a paste. The copper must be previously well cleaned by friction.

Copper on Iron.

The pieces of cast-iron are first placed in a bath made of 50 parts of hydrochloric acid, at 15 degrees Beaume (sp. gr., 1.105), and 1 part of nitric acid; next, in a second bath, composed of 10 parts of nitric acid, 10 parts of chloride of copper, dissolved in 80 parts of the same hydrochloric acid as just alluded to. The objects are rubbed with a woolen rag and a soft brush, next washed with water, and again immersed until the desired thickness of copper is deposited. When it is desired to give the appearance of bronze, the coppered surface is rubbed with a mixture of 4 parts of sal ammoniac and 1 each of oxalic and acetic acids dissolved in 30 parts of water.

To every gallon of saturated solution of sulphate of copper, add $2\frac{1}{2}$ ounces of strong sulphuric acid and $\frac{1}{2}$ drachm white arsenic. If single cell, place a bag of sulphate in the solution just below the surface to keep up the strength.

Copper Steel

Is obtained by melting together 3 parts of fluo-silicate of potassium and 1 each of soda and copper at such a temperature that the metal is covered with a very liquid slag, and the copper

beneath it forms silicide of copper, containing 12 per cent. of silicium, and is as white as bismuth, and hard. An alloy containing 4.8 per cent. of silicium has a beautiful yellow-bronze color, is hard, and can be worked with the same tools as iron. It may also be drawn into wire. Alloys with a larger percentage of silicium are harder.

Copper—To Tin for Stew-Dishes or other Purposes.

Wash the surface of the article to be tinned, with sulphuric acid; and rub the surface well, so as to have it smooth and free of blackness caused by the acid; then sprinkle calcined and finely pulverized sal ammoniac upon the surface, holding it over a fire where it will become sufficiently hot to melt a bar of solder which is to be rubbed over the surface; if a stew-dish put the solder into it and swab it about when melted. You will wipe off any surplus solder, and also for the purpose of smoothing the surface, by means of a tow or cotton swab, tied or tacked to a rod. In this way any dish or copper article may be nicely tinned.

Copper and Brass—To Tin.

Boil 6 lbs. of cream of tartar, 4 gals. of water, and 8 lbs. of grain tin, or tin shavings. After the materials have boiled a sufficient time, the substance to be tinned is put therein and the boiling continued, when the tin is precipitated in its metallic form.

Copper, Brass and Iron—To Tin in the Cold and Without Apparatus.

The requisites for accomplishing this object are: 1st. The object to be coated with tin must be entirely free from oxide. It must be carefully cleaned, and care be taken that no grease spots are left; it makes no difference whether the object be cleaned mechanically or chemically. 2d. Zinc

powder; the best is that prepared artificially by melting zinc and pouring it into an iron mortar. It can be easily pulverized immediately after solidification; it should be about as fine as fine sand. 3d. A solution of protochloride of tin, containing 5 to 10 per cent., to which as much pulverized cream of tartar must be added as will go on the point of a knife. The object to be coated is moistened with the tin solution, after which it is rubbed hard with the zinc powder. The tinning appears at once. The tin salt is decomposed by the zinc, metallic tin being deposited. When the object tinned is polished brass or copper, it appears as beautiful as if silvered, and retains its luster for a long time. The author uses this method in his laboratory to preserve his iron, steel and copper apparatus from rust. This method would become of great importance if the tinning could be made as thick as in the dry way, but this has not yet been accomplished.

Copper—To Whiten Throughout.

Take thin plates of copper, as thin as a knife, heat them six or seven times, and quench them in water; then melt them, and to each pound add four ounces of saltpeter and 4 ounces of arsenic, well powdered and mixed, and first melted apart in another crucible, by gentle degrees; then take them out, and powder them; then take Venetian borax and white tartar, of each an ounce and a half; then melt these, with the former powder, in a crucible, and pour them out into some iron receiver; it will appear as clear as crystal and is called crystallinum fixum arsenicum. Of this clear matter, broken into little pieces, throw into the melted copper (by small pieces at a time, staying five or six minutes between each injection) 4 oz.; when all is thrown in, increase the fire, till all be well melted

together for a quarter of an hour; then pour it out into an ingot.

Copper and Brass—To Coat with Zinc.

In order to do this, it is simply necessary to immerse the articles in a boiling bath of sal ammoniac containing zinc foil or powdered zinc. The deposit thus made is brilliant and adheres firmly.

Coral—Artificial.

Yellow resin, 4 parts; vermilion, 1 part. Melt. This gives a very pretty effect to glass, twigs, cinders, stones, etc., dipped into it. It is also useful for a cement for ladies' fancy work, such as grottoes, etc.

Coral Baskets—To Imitate.

Make the basket of pasteboard in any shape you please; dissolve three sticks of sealing-wax in a pint of alcohol; wet the basket with this mixture, and sprinkle on rice which has been about half ground; let it dry, and repeat the process until the pasteboard is covered, after which paint it with the mixture until it is red enough. A brush of hair or feathers should be used.

Corn—Broom.

Broom corn should be planted at the same time Indian corn is planted. It requires a richer soil than Indian corn—at least Indian corn will produce a better crop on a less fertile soil than is required for broom corn, in consequence of its growing faster, and feeling the effects of fertilizers more perceptibly. Bottom lands on the banks of rivers that are annually overflowed in early spring are particularly adapted to the growth of broom corn. It is sowed in drills, about three feet apart, and the corn thinned out to stand from four to six inches apart. Any good upland soil that consists of a rich mould, easily tilled, will produce an excellent crop of broom corn, with the aid of barnyard manure or other fertilizers.

It requires careful cultivation, by running the cultivator between the rows as soon as the corn is well up; and then the rows require hand-weeding, and thinning out to the proper distances. Boys and girls can do this work better than men can, and at one-third the expense that it would cost to employ men to do it. No weeds should be permitted to grow, as the value of the crop depends on the cleanness of cultivation.

The seed is valuable for fowls, and for every kind of live stock when ground; and some cultivators think that the seed alone is worth the cost of cultivation.

Corpulence.

The late Mr. William Banting, author of a letter on Corpulence, gives the following excellent advice, with a dietary for use in cases of obesity (corpulence):

Medicine.—None, save a morning cordial, as a corrective.

Dietary.

Breakfast.—Four or five ounces of beef, mutton, kidneys, broiled fish, bacon, or any kind of cold meat, except pork, a large cup (or two) of tea without milk or sugar, a little biscuit or dry toast.

Dinner.—Five or six ounces of any fish except salmon, any meat except pork, any vegetables except potatoes; one ounce of dry toast; fruit without pastry; any kind of poultry or game.

Tea.—Two or three ounces of fruit, a rusk or two, and a cup or two of tea; without milk or sugar.

Supper.—Three or four ounces of meat or fish, as at dinner.

Mr. Banting adds: "Dietary is the principal point in the treatment of corpulence (also in rheumatic diseases, and even in incipient paralysis). If properly regulated, it becomes in a certain sense a medicine. It purifies the blood, strengthens the muscles and

viscera, and sweetens life, if it does not prolong it."

Cotton—To Detect in Linen Fabrics.

A German professor has discovered the means, by the aid of chemistry, of recognizing the presence of cotton in linen fabrics. He takes a piece of the suspected cloth, about two inches by three-fourths of an inch, and, after having unraveled both weft and warp, plunges it in an alcoholic solution of aniline and fuchsine. The superfluous coloring matter is removed by washing the cloth thus dyed several times in water. If, while it is still wet, it be placed in a saucer containing ammonia, the cotton fibres will immediately become discolored, while those of linen will preserve a fine red color.

Counterfeit Money—Rules for Detecting.

Examine the form and features of all human figures on the notes. If the forms are graceful and features distinct, examine the drapery—see if the folds lie naturally; and the hair of the head should be observed, and see if the fine strands can be seen.

Examine the lettering, the title of the bank, or the round handwriting on the face of the note. On all genuine bills, the work is done with great skill and perfectness, and there has never been a counterfeit but was defective in the lettering.

The imprint, or engraver's name. By observing the great perfection of the different company names—in the evenness and shape of the fine letters, counterfeiters never get the imprint perfect. This rule alone, if strictly observed, will detect every counterfeit note in existence.

The shading in the background of the vignette, or over or around the letters forming the name of the bank, on a good bill is even and perfect, on

a counterfeit it is always irregular and imperfect. Examine well the figures on the other parts of the note containing the denomination, also the letters. Examine the die work around the figures which stand for the denomination, to see if it is of the same character as that which forms the ornamental work surrounding it.

Never take a bill that is defective in any of the above points, and if your impression is bad when you first see it, you would better be careful how you become convinced to change your mind—whether your opinion is not altered as you become confused in looking into the texture of the workmanship of the bill.

Examine the name of the State, name of the bank, and name of the town where it is located. If it has been altered from a broken bank, the defects can plainly be seen, as the alteration will show that it has been stamped on.

Court Plaster—Substitute for.

Take half a dozen pigs' feet, well cleaned for cooking, and boil to a jelly of, say about half a pint or less—then spread with a brush on any waste scraps of silk, and we find it equal to any adhesive plaster we have ever used. Any fatty substance in the boiling of the feet rises to the surface, and when cold can easily be removed. One of its chief excellencies is, that it costs nothing but the trouble of preparing.

Courtesy—The Decline of.

Disraeli said: "Clothes do not make a man, but they have a great deal to do with it." May not as much be said of good manners? Do they not increase a man's popularity, widen his influence and heighten the pleasure and enjoyment of daily life? There is scarcely anybody who will deny the value of good manners, and yet, in

this age of hurry and worry, how few people seem to have the time or inclination to be polite. It may be that the breaking down of old aristocratic and political barriers, or an ever growing spirit of self-absorption has caused the change; but, from whatever cause or causes, the stubborn fact remains that genuine courtesy no longer holds its place in the educated world. It is quite true that we find the rules of etiquette generally observed, but, after all, they constitute the shell, not the spirit, of courtesy. The more manners are permitted to decline the more strained and artificial will life become. Just as some people think violence is strength and caution timidity, so do others confound brusqueness with manliness and gentleness with effeminacy.

COWS.

Dairying in a Nutshell.

The following rules make a very complete treatise on dairying. They were formulated from papers read by the most successful dairymen of Wisconsin at the State Farmers' Institute, and are the most valuable set of rules for dairying ever published.

Selection of Stock.—Select the best cows in your herd, or that you can buy, to keep, and dispose of the others.

The best cow for dairy is the one that produces the greatest amount of butter fat in a year (for food consumed), when being rightly fed.

Test your cows by weighing the amount of milk for a year, and test it occasionally with the Babcock Milk Tester, and know how much butter fat each one does produce.

To renew or increase your herd, raise the heifer calves from your best cows.

Use the best dairy-bred sire you can get; one, if possible, that has a long line of ancestors that have been first-class dairy animals.

In this way you can make each generation better than the preceding one, if they have at all times proper care and feed.

It is neither profitable nor necessary for a cow to go dry more than four to six weeks.

Especially should your young cows be watched and not allowed to acquire the habit of drying up too soon.

Darken the stable in which the cows are milked, through fly time. It will not only economize the patience of the milker, but the cost of the milk production as well.

Keep a record of the time when the cows are bred, and have no guesswork about the time of calving.

Provide a roomy box-stall, and allow the cows to become accustomed to it a week prior to calving.

Bulky food should be withheld a short time prior and subsequent to calving.

The udder should receive prompt attention. An obstacle may be removed from the teat the first hour, that might baffle science later.

A pail of scalded bran should be given to the cow as soon as possible after calving.

The calf should be permitted to nurse its mother for two or three days.

After separating the calf from its mother, feed the natural milk as soon as drawn, for a week or ten days.

Then begin gradually to substitute skim milk with oilmeal jelly stirred into it.

Scald the calf's feed pail daily.

Feed three times a day and not more than three quarts at a time until the calf is well started.

Warm the milk by placing the vessel that contains the milk in hot water.

Warm the milk to 90 degrees Fahrenheit.

Don't trust your finger, but a thermometer. It will save many a calf's life.

The man whose ideal of a cow is high, coupled with good care, feed and gentleness, is sure to receive the highest profit in milk and pleasure that can be made in dairying.

Care and Feed.—Begin with the calf to develop the cow. .

Feed the calf liberally on the kinds of food which, if given the cow, would be good milk-producing food.

Such food contains a large proportion of nitrogen and will promote rapid growth without making the calf excessively fat.

Feed the calf skim-milk, oil meal, clover, hay, oats, wheat and bran.

Breed the heifer to come in at two years old.

After calving, feed lightly on concentrated food at first, but gradually increase till in ten days she will be on full feed.

The better a cow is fed, up to her capacity to assimilate, the greater will be the profit.

Feed a variety of good fodders, such as clover hay, ensilage and corn fodder—all the cow will eat.

Do not feed too much corn, not more than one-third, or, at most, not more than one-half the grain ration; the balance may be a mixture of wheat, bran, oilmeal or cotton-seed meal, and oats, if oats are not too high in price.

It will pay to feed a small grain ration in summer when cows are on grass, if they are giving milk.

It pays better to produce milk in winter when dairy products are higher than in summer.

Cows should come fresh in September or October, for greatest profit.

It makes very little difference in the cost of keeping a cow, whether she come in in fall or spring; she must be fed well the whole year round, anyway.

A cow should not be compelled to work hard for food by treading all day over a scanty pasture.

She will take very little exercise if she can get food and drink without it.

Don't make her travel hard for water, but have good, pure water convenient.

She likes to lie down most of the time and chew her cud, and take comfort.

She must be comfortable to do her best.

She must have free access to salt.

Don't drive her fast, and don't let dogs chase her.

Give cows a warm, comfortable stable in winter, with plenty of light and good ventilation.

The stables should have tight walls with ventilating flues running from near the floor up and out at the roof to carry off the foul air.

Cows should not be kept out of doors in cold, rainy or uncomfortable weather.

Do by your cows as you would like to be done by yourself.

If it is too cold and disagreeable for you to stand around out doors, think of your cows and put them in.

Would you like to get in the shade when the sun shines hot? Then your cows would. Provide them shade. They will pay you for it.

Do not compel your cows to drink ice-water in winter.

Give them water as often as they want it, at a temperature that suits them.

In winter, if cows have water constantly before them in the stable, they will drink at least twice a day, and sometimes four times a day.

Cows want to drink every time after eating unless sufficient water is contained in the food.

Speak to a cow as you would to a mother.

Milking. — Always confine cows in the stable to be milked. It is better than to have them chase one another around the yard.

Have the stables clean, and have the cow clean, or you can't get clean milk. Lime water and whitewash for the walls and posts is a good thing. Land plaster is a good absorbent in the stable.

Before commencing to milk brush all loose dirt from the sides and udder of the cow.

After a little manipulation of the teats and udder, the milk is ready to "come down." Then is the time to take it, and do not delay.

Milk as rapidly as possible without irritating or worrying the cow.

No definite rule can be given as to how the teats should be handled in milking, as cows differ and hands differ so.

There should always be a friendly feeling between the cow and the milker, and milkers should not be changed if it can be avoided.

A cow will not "give down" her milk to a milker she hates or is afraid of, and what she does give will be deficient in butter fat.

Always milk a cow in the same manner, at the same time and speed. Any change will irritate and tend to excite her.

Always milk in the same order and at the same time of day.

When it comes a cow's turn to be milked, she knows it and expects it, and wants to be milked.

If you disappoint her and milk her half an hour later, the chances are that you will get less and poorer milk than if you milked at the proper time.

Always milk a cow dry before leaving her, but do not continue stripping after the milk is all drawn.

If part of the milk is left at each milking in the udder, nature will soon

stop providing it, because it is not taken.

The last milk drawn from a cow is much richer than the first. The last usually contains more than three times as much butter fat as the first quart.

Milking should be done with clean, dry hands.

Care of Milk. — Milking should be done in clean, dry tin pails. No wooden pails should be used.

Milk should not be exposed to foul air.

If it is to be set for creaming it should be set as quickly as possible after milking.

If it is to be taken to the factory, either creamery or cheese factory, or is to be sold in the market it should be immediately aerated with pure air and cooled.

Don't neglect to aerate the morning's milk, even if you are in a hurry. It is often the worst milk delivered at the factory.

The milk of a sick cow is not fit for food, and is prohibited by law.

Strain the milk as soon as drawn from the cow.

As long as the milk is warmer than the surrounding atmosphere it is continually giving off vapor, and will not take on odors, but injurious bacteria may find their way into it.

If the milk is cooler than the surrounding air, the impure vapors in the air are rapidly condensed on the milk, thereby causing taints.

If carried to the factory, there should be a ventilator in the top of the can, and the can should be protected from the rays of the sun on the way.

If the patrons of the factory do not deliver good milk, the product, whether butter or cheese, cannot be first-class, and cannot bring first-class prices.

Butter Making.—Good butter can only be made from good milk, and this can only be had from healthy

cows kept in good, wholesome food, with pure water to drink.

The most effective way of obtaining the cream from the milk is the use of the separator. Indeed, it is very probable that the time is near at hand when the creaming of nearly if not quite all the milk used for butter making, will be done by the separator, either on the farm or at the creamery.

The separator gets nearly all the butter fat.

If a separator leaves over one-tenth per cent. fat in the skim milk it is not doing good work.

Keep up the proper speed and temperature and your separator will invariably do good work.

The temperature of milk to separate well should be as high as 80 degrees.

It separates best immediately after being drawn from the cow, before it has had time to cool.

Immediately after separating, the cream should be well aired and cooled down to about 60 degrees, and held at that temperature till slightly acid, and then churned.

Let the cream get thick, but never let it "wey off."

The usual temperature for churning is from 58 to 62 degrees, but no one can tell what temperature is best for his milk until after a trial.

The churning, to be most exhaustive, should be done at as low a temperature as possible, and not be longer about it than 45 to 50 minutes.

Don't be satisfied with your churning if it leaves over two-tenths per cent. fat in the buttermilk. It doesn't pay.

If the butter is too soft it has probably been churned at too high a temperature. It is easy to overwork such butter; i. e., spoil the grain.

Under certain conditions of food, and with certain cows, churning has been done quickly at 40 degrees.

Under other conditions it has been impossible to churn at less than 70 degrees.

When the butter is in granules the size of wheat kernels, the churn should be stopped.

Throw in some salt and give a few turns of the churn to make the butter float.

Draw off the buttermilk and wash in two or three waters.

Many persons salt in the churn, but if your customers are particular about the salting, it can be done more nicely by taking the butter out and salting on the worker.

The average customer wants about an ounce of salt to a pound of butter.

If your customer wants pretty dry butter, work it over once, then let it lie in a cool place from two to three hours, then re-work and pack, and you will have no mottled or streaked butter.

Make your butter as to salt and color to suit your customers, and put it in such packages as they wish.

An uneven distribution of salt makes streaked butter.

If you make good butter you can always get a good price for it.

Send it to the butter market.

If you have no special customers send it to a good, reliable commission man, and he will soon find buyers.

After they have tried it and found it good they will ask for it again, and after a while, if they get good every time, they will get to thinking they can't get along without it and can be induced to pay a fancy price for it.

A good reputation is a good help in making butter, so when you get it, don't for the world blast it by sending off a package of poor butter when there is a chance of a good customer getting it.

If, by accident, you have a poor tub of butter, don't put your brand upon

it, but send it off and let it be sold on its merits.

Cheese Making.—It is a pretty well established fact that a profitable butter cow is also a profitable cheese cow.

It is not wise to take any cream from milk that is to be made into cheese.

There may be a small per cent. gain by the operation, but it will be followed by a damaged reputation that it will take a long time to outgrow, so that in the end it will be a losing business.

Milk at cheese factories should be pooled on the basis of the butter fat contained in it, the same as in the creameries.

Many careful experiments have proved that this does substantial justice.

Remember the most serious obstacle the cheese-maker has to contend with is tainted milk.

The causes of taint in the milk nearly all rest with the producer.

It is only justice to the deserving patrons that the cheese-maker should refuse milk delivered at the factory in bad condition, but the cheese-maker cannot always tell when the milk is bad, as germs may be in it that will only develop after heating it. Such germs get into the milk through uncleanness.

One batch of impure milk contains enough bacteria to contaminate an entire vat of pure milk.

Milk for cheese-making should not be treated precisely as it is for butter-making.

Thorough aeration is absolutely necessary before milk is placed where the temperature would be rapidly lowered.

A simple way to aerate milk is to pour it slowly with a long-handled dipper, one that will reach to the bottom of the can.

Do not use too large cans, for the milk will not be properly aerated in such cans.

Be sure the cans are smooth and well soldered, and that there are no corners for the dirt to get into.

The same thing with the covers. Don't buy a can where the edge of the cover is turned over and not soldered.

Keep milk cans in good repair, but do not try to tinker up a rusty old can that has passed its day of usefulness, for it may spoil more milk than ten new cans would cost.

In repairing cans don't have a bottom soldered in over the old one, or a patch put on under which the milk may afterwards get and rot.

Shove the cover down close to the milk, so that it will not churn on the way to the factory.

Do not allow whey to stand in the milk cans after returning from the factory.

Better not take whey from the factory unless it can be obtained sweet.

Insist upon your cheese-maker thoroughly scalding the whey and scrubbing out the whey tank daily.

Sweet whey, when properly fed, may be worth from eight to ten cents per 100 pounds.

Sour whey, when over-fed, may not only be a positive damage to the animals receiving it, but a source of contamination to the milk carried to the factory.

As soon as you return from the factory, wash the cans.

Rinse first with cold water, then wash thoroughly with hot water, rinse last with scalding water, and place cans where they will drain, be in the sun and have a good circulation of air all around.

Water that you can hold your hand in won't scald a can.

Do not rely upon the pump in times of scarcity of milk and low dividends.

But cling to the Babcock test; use it as a friend and counselor in times of doubt and perplexity.

It will prove itself to be as good a friend in the cheese factory as it has been in the creamery.

And your ways will be ways of pleasantness, and your paths will be paths of peace.

At the Utah Experiment Station fourteen cows were tested—the test extending through one year. The feed was weighed separately to each cow and charged to her, and all the butter from her milk was credited to her. The table shows the results, and indicates the importance of keeping only the best cows:

No. of Cow.	Weight of Cow.	Cost of Feed.	Lbs. of Butter in One Year.	Cents per Pound.	Order of Value.
3	976	\$21.65	365.46	5.91	1
9	911	19.71	317.20	6.21	2
5	1,007	20.90	302.91	6.91	3
2	1,101	17.80	254.46	6.99	4
8	992	24.89	353.53	7.04	5
11	989	18.74	249.13	7.51	6
13	1,035	26.71	326.97	8.17	7
4	1,029	25.58	291.66	8.77	8
7	965	25.00	265.73	9.40	9
10	966	25.82	261.00	9.88	10
12	909	23.88	237.20	10.06	11
5	914	20.07	182.00	11.02	12
14	889	19.61	171.60	11.42	13
1	1,191	21.58	182.81	11.80	14

Note the difference between the best and poorest cows. The best is over 200 pounds less in weight, her food costs practically the same, while her butter product is doubled at one-half the cost per pound. From this it is easy to see which of these cows pay their way in hard times.

Cows, Dairy.—Individual Differences in the Value of

By Wilber J. Fraser, instructor in Dairy Husbandry, College of Agriculture and Chief in Department of Dairy Husbandry, University of Illinois Agricultural Experiment Station.

Common observation teaches us that different cows produce different amounts of milk and butter-fat in the same period of time, but it does not inform us whether the food consumption differs in proportion to yield, or whether one cow may actually manufacture more than another out of the same amount of feed. The question

then arises: will two cows fed on like feeds make the same returns, and, if not, will the yield be in the ratio of the feeds consumed? It was to determine this question that the experiment here described was conducted and the conclusion may be found as below:

RECORD OF THE TWO COWS FOR ONE YEAR
COMPUTED ON A LIKE FEED BASIS.

	Cow No. 1.	Cow No. 2.	Difference.
Reduced to a like feed basis the amount Nora would have produced had she eaten the same as Rose.			
Total digestible dry matter consumed, in pounds.....	6477.92	6477.92	.....
Total yield of milk in pounds.....	11329.00	8121.60	3207.40
Total yield of butter-fat in pounds.....	564.80	312.53	252.27
Total yield of butter, in pounds.....	658.90	364.62	294.28
Total value of butter at 16c per pound.....	\$105.43	\$58.34	\$47.09

Reduced to a like feed basis, for every 100 lbs. of milk given by No. 2, No. 1 gave 139.5 lbs., and for every 100 lbs. of butter-fat produced by No. 2, No. 1 produced 180.7 lbs.

Comparative Value of the Two Good Cows.—As milk is nearly always valued by the amount of butter-fat which it contains, and No. 1 produced on the same feed basis 1.807 times as much butter-fat as No. 2, the difference in yield between the two cows was 252.27 lbs. of butter-fat or 294.31 lbs. of butter per year. This at 16 cents per pound, which is the average value of butter before being made up, would amount to \$47.09 per year. Supposing that the cows would yield in this ratio for six years, from the age of four to ten, which is a conservative estimate, No. 1 would produce \$282.54 worth of butter more than No. 2, on exactly the same kind and quantity of feed. The calves of No. 1 are also of vastly more value than those of No. 2.

Feed and care are not the only factors in the production of milk. There

are wide differences between individual cows and between herds. We have the records of nearly 300 Kansas herds. In one herd the average yield in a year per cow is 127 pounds butter-fat; in another herd the average is 334 pounds butter-fat per cow in a year. The yields of milk per year per cow, vary from 3,446 pounds to 8,682 pounds. These records are all from herds of common Kansas cows handled under Kansas conditions and by Kansas methods. Each of these herds is made up of poor, indifferent and good cows, and if the best cows only had been selected in each herd, the averages would have been much higher.

Summary.— There are vast differences in the efficiency and profit derived from individual dairy cows.

One cow may produce more than twice as much butter-fat in a year as another on exactly the same feed basis.

A good cow, well cared for, may produce five times as much as the average cow in the United States, or nearly as much as three "profitable" cows for Illinois.

Nearly all dairymen are keeping a portion of their herd at an actual loss.

Many keep cows that pay only half as much a bushel for the grain consumed as other cows in the same herd.

Excellent cows are obtainable at a reasonable price in nearly all sections of the country. (There is almost no dairying in this region, yet the cow No. 1 and several others nearly as good were purchased in this community for fifty dollars each.)

Give the cows a one-week test every three months; have a profitable standard; gradually raise it each year and dispose of any cows that do not come up to this.

Breed the best cows to a dairy sire of excellent breeding and individuality, and raise the heifer calves.

Cows — Have a Profitable Standard.— A prominent dairy authority has recently said: "If the death angel should sweep over the state and in one night destroy the poorest third of all the cows in Illinois, the dairymen would awake the next morning financially better off." Frequently dairymen are keeping one-half of their herd at an actual loss. They are perhaps making a little profit on the whole herd and are thus apparently satisfied, whereas, if they would dispose of their unprofitable cows they would make more money and also save labor. If in a town having two grain elevators, one paid one-half cent a bushel more for grain than the other, no farmer would be foolish enough to sell his grain at the one paying the lower price. Yet dairymen will persist in keeping cows year after year that are paying them only twenty-five cents a bushel for grain, while others in the same herd or that can easily be obtained at a reasonable price, will pay fifty cents a bushel, or even more, for the grain they consume. The difference in price which individual cows are paying for their grain is not so apparent as the difference at the elevators, but it is none the less actual and affects the pocketbook just as surely in the end.

Every dairyman should have a profitable standard of production for his cows, and any mature cow that does not come up to this standard should be disposed of at once. What this profitable standard is each must determine for himself, as it will depend upon the cost of feed and care, and the value of the product in that particular locality. This standard should be gradually raised each year by weeding out the poorest cows and breeding only from the best. The only way this can

be done intelligently is by keeping a record of each individual cow. Generally speaking, cows cannot be kept at a profit in Illinois that do not produce the equivalent of 250 lbs. of butter annually.

Cows—Keeping Records of Individual.

To determine exactly what a cow produces in a year every milking must be weighed and sampled, but if the herd is given a one-week test every three months it will be sufficient to yield valuable results. All the apparatus necessary for this purpose is a spring balance, as many common glass fruit-jars as there are cows in the herd, and a four-bottle Babcock milk-tester. The latter can be purchased from any creamery supply house complete for four dollars. A set of directions accompanies the tester, and by following these any intelligent person can operate the test.

This test should be made every three months, or thirteen weeks, and in computing the yield of the cow for the three months, the six weeks previous to and the six weeks following the test should be taken, for obvious reasons, and not the three months before or the three months after. Even if the cow is shrinking in flow, the week in the middle of the three months will fairly represent her average yield for that period.

After a trial, all mature cows that do not come up to a profitable standard should be disposed of at once. A heifer may not do well with her first calf, but if she is a promising individual in other respects she should still be retained. If, however, she is a poor producer during her second lactation period, she should be kept no longer.

After the cows have been tested for a year and the best ones determined, these should be bred to a sire of some dairy breed, one that is both an excel-

lent individual and whose female ancestors for several generations have been large producers. In no class of animals is the pedigree of so much importance as in the dairy sire.

Cows, Dairy,—To Select.

Cows of extraordinary milking qualities are as often found among the native as among grade and thoroughbred animals; and, as a rule, the progeny of these extra-milkers become the best cows, and every heifer-calf from such should be raised, except it fails to carry the mark indicating a good milker. This mark is the upward growth of the hair on the inside of the thighs of the calf from immediately behind the udder, as high as the hair goes. If it be found running up in a very smooth and unbroken column—all other things being equal—with good care and continued fine growth, there will scarcely be a failure. But whatever extraordinary qualities the cow may possess, unless this mark is found on the calf, it is not worth raising for a dairy cow. There are several other signs and conditions indicative of valuable milking qualities, some of which attend the first described. Smooth and fair-sized teats; a large and long milk vein; slim neck; and sometimes six teats; a yellow skin apparent about the eyes, nose, and other bare spots, are indications of rich milk, and one of the indications of a good cow.

Cows—Abortion in.

The predisposing cause for this disease is constitutional in the animal, while the exciting cause may be ill-treatment at the time of pregnancy, damp surroundings, food in which ergot of rye may be found, impure water, etc. The predisposing cause can be avoided by giving the generative organs of the animal a rest. The doing of this, by a freedom of from six months to a year from pregnancy, will almost insure freedom from abortion—

especially so if care is taken in the avoiding of all supposable exciting causes. Many farmers may not be willing to endure the loss involved in this suggestion; but it will be a gain in the end, because no animal aborts without, in a greater or less measure, experiencing such a shock to her system as will tell on her future health and value.

Cows, Farrow—What to Do With.

Feed them liberally and they will give rich milk, though, perhaps, not much of it. Let them have 3 or 4 quarts of meal a day through the winter and spring, and do not stop giving it to them when grass comes. As soon as it dries them up they will be fit for the butcher.

Cows—Bloody Milk in.

To cure, give a tablespoonful of milk in a little bran or meal, renewing the dose the second or third day. Another remedy is to give a tablespoonful of sulphur in a little dry bran once a day—in very bad cases, twice a day.

Cows—Garget in.

This disorder is very frequent in cows after ceasing to be milked; it affects the glands of the udder with hard swellings, and often arises from the animal not being clean milked. It may be removed by giving a pint of beans a day for 4 or 5 days. The beans should be soaked and mixed with meal to make the cow eat them; but the better way is to grind the beans and feed a pint a day with other meal. This will be found a sure remedy. Another plan is to give the cow 1 teaspoonful of the tincture of arnica, in bran or shorts, three times a day, and bathe the bag thoroughly with it as often. The arnica for bathing should be reduced $\frac{1}{2}$ in warm water, and bathe with the hand.

Cows—Hard-milking.

The causes for cows holding up their milk are various—irregularity in time of milking, imperfect milking, and lack of water in pastures; over-driving in bringing animals home; the taking of the calf away—and especially will this be the case where the calf, while being reared, is kept in a situation where the mother can keep up an acquaintance with it; and finally the presence of a vicious or sulky disposition in the cow, the slightest dissatisfaction making them hold up their milk. These last are unprofitable and only fit for the shambles. The remedy in usual cases is, besides the avoidance of the apparent cause, gentleness, kind words, and a system of petting the animals, so as to gain their confidence and affection, coupled with plenty of good water and feed.

Cows—Kicking.

Cows seldom kick without some good reason for it. Teats sometimes are chapped or the udder tender; harsh handling hurts them, and they kick. Sometimes long and sharp finger nails cut their teats, and sometimes the milker pulls the long hairs on the udder, while milking. Shear off the long hairs, cut long finger nails close, bathe chapped teats with warm water, and grease them well with lard, and always treat a cow gently. She never will kick unless something hurts her, or she fears a repetition of former hurts. When handled gently cows like to be milked. When treated otherwise, they will kick and hold up their milk. Occasionally a cow is found that, like some men, has a bad, ungovernable temper that flies at merely imaginary offences. For this class take a small strap long enough for the purpose, and bend the foreleg so as to bring the foot up to the body. Then put the strap round the arm and small part of the leg, near the hoof, crossing

between so as not to slip off over the knee, and buckle. In this condition it is an impossibility for a cow to kick; they may come to the knee a few times, but are soon quiet. Never, as some do, confine the hind legs, either singly or together, for in doing this there is danger of spoiling the animal. Milkers should study the temper of the cows they milk, and find out whether a cow kicks on account of pain or wilfulness. If it is from bad temper, the strap applied to the foot is a very good way to subdue her, but you should avoid whipping and beating in all cases.

Cows—Milking, the Right Method of.

Some persons in milking seize the root of the teat between the thumb and forefinger, and then drag upon it until it slips out of their grasp. In this way teat and udder are subjected to severe traction for an indefinite number of times, and in rude hands are often severely injured. Others, again, by carelessness and want of thoroughness, will cause the usual quantity of milk to shrink one-third in two weeks. In many localities more cows are ruined from faults of bad milking than from all other causes that act specially on the udder. The proper mode of milking is to take the teat in the entire hand, and, after pressing it upward, that it may be well filled from the capacious milk reservoir above, to compress it first at the base between the thumb and forefinger, then successively by each of the three succeeding fingers, until completely emptied. The teat is at the same time gently drawn upon, but any severe traction is altogether unnecessary and highly injurious.

Cows—To Increase Their Milk.

Give your cows, three times a day, water slightly warm, slightly salted, in which bran has been stirred at the

rate of 1 quart to 2 gallons of water. You will find, if you have not tried this daily practice, that the cow will give 25 per cent. more milk, and she will become so much attached to the diet that she will refuse to drink clear water unless very thirsty, but this mess she will drink almost any time, and ask for more. The amount of this drink necessary is an ordinary water-pail full each time, morning, noon and night. Avoid giving cows "slops," as they are no more fit for the animal than the human.

Cows—Milk Fever in.

As soon as there are indications of milk fever, the animal should be restricted to an exclusive hay diet. This treatment should be followed, even in summer time, unless the animal is kept in very close pasture and shows no tendency to fatten. This moderate feeding of hay only should be continued until the fourth or fifth day after calving, at which time the full flow of milk is established, and the danger of puerperal fever has become slight.

Cows—Old, When to Kill.

It is a question among farmers as to what age cows can be properly used for dairy purposes, and when it is best to dispose of them on account of age. It will depend somewhat on the breed of the animals and the usage they have received. As a general rule, when a cow has entered her teens, she has approximated closely the limit of her usefulness in the dairy line. A good farmer has remarked that a cow was never worn out so long as there was any room on her horns for a new wrinkle.

Cows—Self-sucking.

A good, simple and cheap arrangement to prevent cows from sucking themselves, or each other, may be made by making a halter as follows: Take two or three straps two inches wide, and long enough to reach around the cow's

nose. Stitch the edges together, and the ends also, with sharp nails inserted every $1\frac{1}{2}$ inches, so that the points will stand outward. The heads of the nails should be very large, and should be between the two straps when sewed together. Now fasten two side straps, with a buckle on one end of one to pass up over the head as an ordinary halter would.

Cows' Teats—Warts on.

Warts on the teats of cows usually extend no deeper than the skin. They should not be removed while the cow gives milk. The most effectual way is to take hold of the end of a wart with pliers, and cut it off with sharp shears. Be careful not to pull the wart out too far. The cut should not be deeper than the skin. This remedy will not hurt a cow as much as clipping the skin does sheep when they are being sheared. Or a piece of small wire may be twisted around a large wart sufficiently tight to obstruct the circulation of the blood, and left on till the wart drops off, leaving the surface smooth.

Crape—To Remove Water Stains from Black.

When a drop of water falls on a black crape veil or collar, it leaves a conspicuous white mark. To obliterate this, spread the crape on a table (laying on it a large book or a paper-weight to keep it steady), and place underneath the stain a piece of old black silk. With a large camel's-hair brush dipped in common ink go over the stain, and then wipe off the ink with a small piece of old soft silk. It will dry at once, and the white mark will be seen no more.

Crape—To Clean.

Rinse it in ox-gall and water to take out the dirt, and then in clean water; finally in gum-water to stiffen it, then beat it between the hands until it is dry.

Crayons—To Make.

Take three quarters of a pound of blue clay, three quarters of a pound of the coloring required, such as vermilion, chrome, Prussian blue, orpiment, etc., two ounces of turpentine, four ounces of spirits of wine, and six ounces of fine shellac. The clay must be well mixed with water, passed through a fine lawn sieve, and allowed to subside; the water is then poured off and the clay dried. The shellac must be dissolved in the mixed turpentine and spirit with a little warmth. The dry clay and the coloring must be blended in a mortar, and then the shellac mixture added and well incorporated till the whole is a doughy mass; it is then to be rolled out into a pencil form and dried with stove heat. To make the crayons of uniform substance, the paste may be placed in a cylinder, with a hole at one end and a piston at the other (like a boy's popgun). The "wormy" pieces that pass through are then cut into proper lengths and dried.

Another.—Shellac 6 parts; spirit, 4 parts; turpentine, 2 parts; color, 12 parts; pale clay, 12 parts. Mix.

Another.—Pipe-clay, color as required, water to mix. Form into a stiff paste and roll it into crayons.

Crayons—Lithographic.

Take white wax, 4 parts; gum lac, 2 parts. Melt over a gentle fire, then add dry tallow soap in shavings, 2 parts. Stir until dissolved. Next add white tallow, 2 parts; copal varnish, 1 part; lampblack, 1 part. Mix well, and continue the heat and stirring until, on trial by cooling a little, it appears of a proper quality, which should be that it will bear cutting to a fine point, and trace delicate lines without breaking.

Another.—Take dry white tallow soap, 6 parts; white wax, 6 parts; lampblack, 1 part. Fuse in a covered vessel.

Another.—Take lampblack, 1 part; tallow soap, 2 parts; shellac, 2 parts; wax, 4 parts. Mix, with heat, and mold.

Another.—Take dried tallow soap, 5 parts; wax, 4 parts; lampblack, 1 part. Mix as before.

Crayon Colors—To Fix.

Paste your paper on canvas, in a frame, in the usual way, then brush over the back two or three times with the following mixture, and when the last coat is dry give the face of the picture one or two coats in the same way. This will make it resemble an oil painting. Spirits of turpentine, 10 parts; boiled oil, 6 parts. Mix.

Cream—Circassian Hair.

Olive oil, 1 pint; white wax, 3 oz.; spermaceti, 2 oz.; alkanet root, $\frac{1}{4}$ oz. Warm the oil and alkanet, then strain, and add it to the melted spermaceti and wax. Scent with three drachms of English oil of lavender, and one drachm of essence of ambergris. Used for the hair.

Cream—Crystalline Hair.

Olive oil, 3 lbs.; spermaceti, 4 to 6 oz.; melt, cool, and add essence of bergamot and essence of lemon, of each 6 drachms; oil of cinnamon, 20 drops; otto of rose, one drachm. Mix. Fragrant. Used for the hair.

Crickets—To Destroy.

A single cricket in the fire place will disturb a household. There is a superstition which prevents uneducated persons from attempting the destruction of the insect. It rasps its wings, producing its well-known sound, chiefly at night. A little ginger cordial being placed in a dish before the fire will attract it, and on partaking of the liquor it will die. The best mode of destroying the insect in its nest is to put snuff into the chinks of the grate.

Crockery Ware—To Mend.

Wash the vessel gently and thoroughly with soap and water, and let it dry without wiping. The pieces should then be fitted together as soon as possible, and kept in their places by winding firmly over the bowl or dish a strong thread, or a piece of twine; put the broken article into a boiler, an inch or two larger each way, and fill them both with sweet, cold, skimmed milk; set the boiler over the fire and boil for ten or fifteen minutes; take it off, and let it stand till quite cold, when the string, or twine, may be cut, and the article washed in warm water.

Crops—Average Full Yields Per Acre of Various.

Apples.—A tree twenty to thirty years old may be expected to yield from 25 to 40 bushels every alternate year, or 300 to 500 bushels per acre.

Artichoke.—200 to 300 bushels.

Beans, Green or Snap.—75 to 120 bushels.

Beans, Lima.—75 to 100 bushels of dry beans.

Beets.—400 to 700 bushels.

Carrots.—400 to 700 bushels.

Corn.—50 to 75 bushels, shelled.

Cranberry.—100 to 300 bushels. 900 bushels have been reported.

Cucumber.—About 150,000 fruits per acre.

Currant.—100 bushels.

Eggplant.—1 or 2 large fruits to the plant for the large sorts, like New York Purple, and from 3 to 8 fruits for the smaller varieties.

Gooseberry.—100 bushels.

Grape.—3 to 5 tons. Good raisin vineyards in California, fifteen years old, will produce from 10 to 12 tons.

Horseradish.—3 to 5 tons.

Kohlrabi.—500 to 1,000 bushels.

Onion, from seed.—300 to 800 bushels. 600 bushels is a large average yield.

Parsnips.—500 to 800 bushels.

Pea, green in pod.—100 to 150 bushels.

Peach.—In full bearing, a peach tree should produce from 5 to 10 bushels.

Pear.—A tree twenty to twenty-five years old should give from 25 to 45 bushels.

Pepper.—30,000 to 50,000 fruits.

Plum.—5 to 8 bushels may be considered an average crop, for an average tree.

Potato.—100 to 300 bushels.

Quince.—100 to 300 bushels.

Raspberry and Blackberry.—50 to 100 bushels.

Salsify.—200 to 300 bushels.

Spinage.—200 barrels.

Strawberry.—75 to 250 or even 300 bushels.

Tomato.—8 to 16 tons.

Turnip.—600 to 1,000 bushels.

The above tables are taken by permission from the Horticulturist's Rule Book, by Prof. L. H. Bailey, Horticulturist of the Cornell University Experiment Station, Ithaca, N. Y.

Croquet.

This out-door pastime is of comparatively modern invention, and until quite lately was very much in vogue. It may be played by persons of all ages, and of either sex; but it is especially adapted for ladies and young persons, as it demands but slight personal exertion, while it affords delightful and health-giving sport.

The ground is preferably a grass plot of an oblong form; but an ordinary lawn or expanse of even turf will answer the purpose, so long as it is of sufficient extent for the operations of the game.

The implements are balls, mallets, starting and turning stakes, croquet clips or markers, hoops or arches.

Arrangement of the Hoops.—The starting stake is driven in at one end of the ground, and the turning stake at the

other extremity. Between these stakes the hoops are fixed at distances of about eight or ten feet apart, and so arranged as to afford good opportunities for the display of address and skill on the part of the players.

The game consists in striking the balls from the starting stake through the hoops up one side of the ground to the stake at the opposite extremity, and then back again through the hoops on the other side to the starting stake. The game may be played by any number of persons not exceeding eight. A larger number renders the game tedious. The best number is four. If only two play, each player may take two balls, and when as many as eight play, there should be two sides or sets. Each player takes a mallet, ball, and croquet clip of a distinctive color or number, the clip being used to indicate the hoop at which, in his turn, he aims. The division into sides, choice of balls, mallets, etc., is determined by the players among themselves.

Croquet—Laws of.

There shall be no restriction as to the number, weight, size, shape, or material of the mallets; nor as to the attitude or position of the striker; nor as to the part of the mallet held, provided the ball is not struck with the handle, nor the mace stroke used. The balls used in matches must be $3\frac{5}{8}$ inches in diameter.

The players shall toss for choice of lead and of balls; and in a succession of games shall take the lead alternately and keep the same balls.

In commencing, each ball shall be placed at one foot from the first hoop in a direct line between the stakes, and a ball having been struck is at once in play, and can roquet another or be roqueted, whether it shall have made the first hoop or not.

A stroke is considered to have been taken if a ball is moved in the act of

striking, but should the player in taking aim have struck it accidentally, and the umpire be satisfied that the stroke was accidental, the ball is replaced and the stroke taken again. If a ball be moved in taking aim, and then struck again without being replaced, the stroke is foul.

If the player make a foul stroke he loses his turn and all the points or roquets made therein, and the balls remain where they lie, at the option of the adversary. The following are considered foul strokes.

(a) To strike with the mallet another ball instead of, or besides one's own in making the stroke. (b) To spoon,—that is, to push a ball without an audible knock. (c) To strike a ball twice in the same stroke. (d) To touch, stop, or divert the course of a ball when in play and rolling, whether this be done by the striker or his partner. (e) To allow a ball to touch the mallet (or any part of the player's person) in rebounding from a stake or wire. (f) To move a ball which lies close to a stake or wire by striking the stake or wire (i. e. to touch with the mallet a wire or stake in making the stroke). (g) To press a ball round a stake or wire (crushing stroke). (h) To play a stroke after roquet without taking croquet. (i) To fail to move both balls in taking croquet. (k) To croquet a ball which the striker is not entitled to croquet.

A player continues to play so long as he makes a point or hits a ball. A point consists in making a hoop or hitting the turning stake in order.

The ball has made its hoop when, having passed through from the playing side and ceased to roll, it cannot be touched by a straight-edge placed across the wires on the side from which it was played.

A player who hits a ball must take croquet: that is, must strike his own ball while in contact with the other,

so as perceptibly to stir both. In doing this he is now not allowed to place his foot on his ball. A player, when his turn comes round, may hit and croquet each ball in succession, and can do this again after each point made, but between the points can only take croquet once off each ball.

A playing ball which hits another after making a point is in hand, and the striker can score no point till he has taken croquet. After hitting another a ball may be stopped by any player; but should it, in rolling, displace any of the other balls, such balls must remain where they are driven.

When, at the commencement of a turn, two balls are found touching, roquet is deemed to be made, and croquet must be taken at once.

When a player, in his stroke, hits one or more balls, he must take croquet off the ball that is struck first; but if he has hit two simultaneously, he may choose from which of them he will take it, and in both cases a second hit is required before he can take it from the other ball.

Should the ball in making its hoop strike another that lies beyond the hoop and then pass through it, the hoop and the hit count to both; but, should any part of the ball that is hit have been lying beneath the hoop, the croquet must be taken, but the hoop does not count.

A rover which strikes or is driven by another ball against the winning stake is out of the game, and must be removed from the ground.

A player who stakes out a rover by a first hit cannot take croquet from it, as the ball is out of the game, and he is not entitled to another stroke.

Should a player play out of his turn, or with a wrong ball, and this be discovered by his antagonist before a second stroke in error has been made, the turn is lost, and all points made

after the mistake, and the balls shall remain as they lay at the time the mistake was discovered, or be replaced to the satisfaction of the antagonist. But if he has made a second stroke before the error is discovered, he continues his break, and the next player follows with the ball that is next in rotation to the one with which he has played, and is liable to lose his turn, and all points made therein, if he plays with that which would have been the right ball if no mistake had been made.

Should a player make the wrong hoop by mistake, or croquet a ball that he is not entitled to croquet, and the mistake be discovered before he has made a second stroke, he loses his turn, and any point so made in error; but if he has made a second stroke before the discovery, he shall be allowed to continue his break.

In order to prevent the occurrence of the errors noticed in the above rules, a player is bound, upon being appealed to, to declare truly what is his next hoop or point in order, and is entitled to demand of his antagonist what he had played last, and to insist upon his clip being properly placed.

When clips are used they should be moved by the umpire, or with his cognizance, at the end of each turn, and their position shall be conclusive as to the position of the balls in the game.

Should a ball in play be accidentally stopped or diverted by the umpire, he places it where he considers that it would have rolled to. Should it be stopped by a player, it will rest with the side opposed to that player to say whether the ball shall remain where it stopped, or be placed by the umpire, or the stroke be taken again.

If a ball lies within a mallet's length of the boundary, and is not the playing ball, it must be at once put out three feet at right angles from the boundary; but if it is the playing ball,

it may, at the discretion of the player, either be put out or played from where it lies.

If it is found that the height of the boundary interferes with the stroke, the player may, at the umpire's discretion, bring in the balls a longer distance than three feet, so as to allow a swing of the mallet. Balls so brought in must be moved in the line of aim.

Should a player, in trying to make his hoop, knock a wire out of the ground with his ball the hoop does not count. The ball must be replaced, and the stroke taken again; but if by the same stroke a roquet be made, the striker may elect whether he will claim the roquet or have the balls replaced.

Any player may set upright a stake or hoop except the one next in order; and that, however loose, awry, or slanting it may be, must not be altered except by the umpire.

No ball may be moved because of its lying in a hole or on bad ground, except by the umpire or with his permission. The ball must be put back—i. e. away from the object aimed at—and so as not to alter the line of aim.

Where there is no umpire present, permission to move a ball, or to set up a hoop or stake or other indulgence for which an umpire would have been appealed to, must be asked of the other side.

The decision of the umpire shall in all cases be final. His duties are: (a) To move the clips, or see that they are properly moved; (b) to decide on the application of the laws; (c) to keep the score, and if asked by a player, to disclose the state of it; (d) to replace balls sent off the ground, or to see that they are properly replaced; (e) to adjust hoops or stakes not upright, or to see that they are properly adjusted. But he shall not give his opinion, or notice any error that may be made

unless appealed to by one of the players.

Croquet—Terms Used in.

Roquet.—To strike another ball with your own.

Croquet.—When two balls are in contact, the player strikes the other away, either with or without putting the foot on his own ball, as may be previously arranged.

A Loose Croquet, is made by striking your opponent's ball without putting your foot on your own ball. In taking "two off" it is, however, necessary that the ball should be seen to move.

Wired.—When a ball is in contact with a hoop, so as to prevent it going through.

Bridge Ball.—One that has passed the first arch.

Dead Ball.—One in hand after having roqueted another.

To Stake.—To play for either of the stakes in regular order.

The Tour.—The run given to each player till he fails to strike through a hoop.

To Dismiss a ball is to croquet it to a distance.

Rover.—You become a rover when you have completed the hoops from point to point, and instead of hitting the starting-stake and retiring, you prefer to strike your ball to any part of the ground, croqueting friends or foes.

The *termisside stroke*, *straight stroke*, *following ball*, *over-running a bridge*, etc., explain themselves.

Crucibles.

The best crucibles are made from a pure fire-clay, mixed with finely-ground cement of old crucibles and a portion of black lead, or graphite; some pounded coke may be mixed with the plumbago. The clay should be prepared in a similar way as for making pottery ware; the vessels, after being formed must be slowly dried, and then properly baked in the kiln.

Black lead crucibles are made of two parts graphite, and one of fire-clay, mixed with water into a paste, pressed in molds, and well dried, but not baked hard in the kiln. This compound forms excellent small or portable furnaces.

Cryptography,

Or secret writing — from the Greek cryptos, a secret, and graphe, a writing — has been largely employed in state despatches, commercial correspondence, love epistles, and riddles. The telegraphic codes employed in the transmission of news by electric wire, partake somewhat of the cryptographic character, the writer employing certain words or figures, the key to which is in the possession of his correspondent. The single-word despatch sent by Napier to the Government of India was a sort of cryptographic conundrum—Puccavi, I have sinned (Scinde). Various and singular have been the devices adopted—as, for instance, the writing in the perforations of a card especially prepared, so as only to allow the real words of the message to be separated from the mass of writing by means of a duplicate card with similar perforations; the old Greek mode of writing on the edges of a strip of paper wound around a stick in a certain direction, and the substitution of figures or signs for letters or words. When one letter is always made to stand for another, the secret of a cryptograph is soon discovered, but when, as in the following example, the same letter does not invariably correspond to the letter for which it is a substitute, the difficulty of deciphering the cryptograph is manifestly increased:—

Ohs ya h sych, oayarsa rr loucys
syms

Osrh srore rrhmu h smsmsmah
emshyr snms.

The translation of this can be made

only by the possessor of the key.

a b e d e f g h i j k l m n o p q i s t u v
h u s h m o n e y b v c h a r l e s h r o s
w x y z
a c s q

"Hush Money, by Charles H. Ross, Esq."—twenty-six letters which, when applied to the cryptograph, will give a couplet from Parnell's "Hermit":—"Far in a wild, unknown to public view, From youth to age a reverend hermit grew."

The employment of figures and signs for letters is the most usual form of the cryptograph. From the following jumble we get a portion of Hamlet's address to the Ghost:—

9 a 6 2 × † 9 a 1 ‖ 3 a 3 †, 2 † † * 7 6 † 9 5 2
1 2 7 2 a 1 ; †
4 2 ‡ * ; † (3 † 3 , * 7 8 2 9 × , 8 * † 6 * 4
× 3 a 1 9 ‖ a 2 1

With the key—

a b e d e f g h i j k l m n o p q r s t u v
9 4 5 1 2 7 6 8 3 + - × ‖ a * () † ‡ , ; :
w x y z
. o ÷

it is easy to write and not very hard to read the entire speech. The whole theory of the cryptogram is that each correspondent possesses the key to the secret. To confound an outside enquirer the key is often varied. A good plan is to take a line from any ordinary book and substitute the first twenty-six of its letters for those of the alphabet. In your next cryptogram you take the letters from another page or another book. It is not necessary to give an example. Enough will be seen from what we have written to instruct an intelligent inquirer.

Curls (False)—Pomade for.

Melt together, in an earthen pipkin, 24 ounces of Burgundy pitch and 8 ounces of white wax; add 1 ounce of pomatum; remove from the fire, and add 4 ounces of brandy or other spirit; replace it on the fire till it boils slightly, then strain through linen, adding ber-

gamot or other perfume, and cast in molds.

Currant Worm.

A multitude of devices have been tried for destroying this pest. Some persons who have only a few bushes, succeed by hand-picking and burning; others by dusting the leaves with lime; others by burning smudges of old leather and sulphur under the bushes; others by dusting the leaves with powdered hellebore, using for this purpose a tin box perforated at the top like a pepper-castor. The latter method has been found very successful. Another method is with a solution of copperas, made at the rate of one pound of copperas to six gallons of water, and sprinkled on the bushes through a common watering-pot. This is cheaper than hellebore, and does not annoy the operator. It is sure and speedy death to the worm, and does no harm to the bushes. The Scotch method of treatment is with soot. When soot is dusted on the bushes after a slight shower has fallen, or after the leaves have been wetted, the vermin will soon drop off the leaves and perish. The application of a sprinkling of dry soot round the roots of bushes, when early digging operations are being proceeded with in spring, will act most successfully in preventing their appearance, and this, resorted to in successive seasons, will entirely extirpate the pests.

Curtains—Window.

Window curtains are alike useful and ornamental. They ought to be chosen of a color harmonizing with the carpet, paperhangings, and other drapery of the apartment. As a rule, red or green curtains will blend pleasantly with ordinary drapery. Window curtains are composed of satin, silk, rep, damask, moreen, muslin, and other fabrics. Rep is very durable, but damask, which may be periodically refreshed by dyeing, is the most economical and

useful. Net and muslin curtains should be substituted or added during the summer months. Top valances have been dispensed with as collecting dust and obscuring the light; and the curtains are now suspended by large rings on brass or mahogany rods, hav-

ing ornamental terminals. Window curtains are seldom drawn, their principal use being to conceal the window-shutters; intercept draughts from the window-sashes, and impart a comfortable aspect to the apartment.

Dairy—Charcoal in the

The power of milk to absorb the noxious gases and odors from the atmosphere is known to every dairyman, and this power extends also to all productions made from milk, be they cream, butter or cheese. Much of the bad flavor in butter and cheese is not caused so much by anything derived from the cow, or the food which she eats, as by the odors imparted to the milk after it is drawn, or to the cheese after it is made, and before it is put in the cloth and rendered impervious to atmospheric influences. Hence the necessity of the greatest efforts being made, not only to keep the dairy and every utensil used in a state of the most perfect cleanliness, but also the attendants should be in every way cleanly in person, and the air kept pure and uncontaminated by any odors whatever. To do this, charcoal, finely powdered, is probably the best and cheapest article that can be used. It is capable, when it is fresh, of absorbing ninety times its own volume of ammonia or other gases, which can again be driven out of the charcoal by the application of heat.

Damp Places—Remedy for.

People who live in damp localities, particularly near undrained land, are apt to think that there is no help for them except in removal. They are mistaken. Successful experiments have shown that it is possible to materially improve the atmosphere in such neigh-

D

borhoods by the planting of the laurel and the sunflower. The laurel gives off an abundance of ozone, whilst the sunflower is potent in destroying the malarial condition. These two, if planted on the most restricted scale in a garden or any ground close to the house, will be found to speedily increase the dryness and salubrity of the atmosphere.

Dark Place—To Illuminate.

By the use of a mirror to throw a reflection of the sun's rays down a deep, dark well, the bottom is clearly seen, and a lost bucket or other object hooked up. The same means may be applied to light a dark garret, cellar or closet. If there are obstacles preventing success with one glass, take two glasses, one to receive the direct rays of the sun and the other the reflected rays from the mirror.

Days—Dog.

Dog-days are forty-two, in the hottest part of the year, beginning with the heliacal rising of Sirius, the dog-star, i. e., July 3d.

Day—The First of the Year.

Many persons consulting ancient records are sometimes perplexed by the dates, especially by the seeming discrepancies in the time when the year commenced. It began:—

At Christmas from the 7th to the 14th centuries.

On March 25th, by the Church, in the 12th century, and the same date was

adopted by laymen in the 14th century. In 1752 the New Style was introduced, Sept. 3 becoming Sept. 14, and the year dating from Jan. 1. Previous to this, two dates were used in documents, one for the civil year, which commenced Mar. 25, the other

for the historical year, which began Jan. 1; and thus we find the same event chronicled under two dates; for example, Feb. 26, 1683-4. The Old Style is still used in the Russian and Greek calendar, Jan. 1 being Jan. 13 of the calendar used elsewhere in Europe.

Days.

Table of the Number of Days, from any Day of one Month to the Same Day of any other Month.

From	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
To January.....	365	334	306	275	245	214	184	153	122	92	61	31
February.....	31	365	337	306	276	245	215	184	153	123	92	62
March.....	59	28	365	334	304	273	243	212	181	151	120	90
April.....	90	59	31	365	335	304	274	243	212	182	151	121
May.....	120	89	61	30	365	334	304	273	242	212	181	151
June.....	151	120	92	61	31	365	335	304	273	243	212	182
July.....	181	150	122	91	61	30	365	334	303	273	243	212
August.....	212	181	153	122	92	61	31	365	334	304	273	243
September.....	243	212	184	153	123	92	62	31	365	335	304	274
October.....	273	242	214	183	153	122	92	61	30	365	334	304
November.....	304	273	245	214	184	153	123	92	61	31	365	335
December.....	334	303	275	244	214	183	153	122	91	61	30	365

Use of the Above Table.

What is the number of days from 10th of October to 10th of July?

Look in the upper line for October, let your eye descend down that column till you come opposite to July, and you will find 273 days, the exact number of days required.

Again, Required the number of days from 16th of February to 14th of August?

Under February, and opposite to August, is.... 181 days. From which subtract the difference between 14 and 16..... 2 days.

The exact number of days required is..... 179 days.

N. B.—In Leap Year, if the last day of February comes between, add one day for the day over to the number in the Table,

Dead Animals—To Preserve in Water Containing Creosote.

In order to preserve dead animals, nothing is necessary but to put them in creosote water prepared by shaking coal-tar creosote with water. According to the size of the animal the immersion should continue from one to several weeks. In very large animals it is better to open the skin by a cut, which is not necessary in birds, fishes, or reptiles; they are then dried in the open air, and a position given to them, such as they are wanted to assume. As the bodies remain elastic after drying, they may be packed without much precaution. This process is especially applicable to the above named three classes of animals, as the feathers of birds retain their color, fishes and reptiles their shape and color also. This is a valuable hint to travelers and naturalists, as the creosote water may be prepared when and wherever wanted, and

the animals after drying may be packed in boxes like minerals.

Decalomania,

Or the Art of Ornamenting China, Glass, Earthenware, Woodenware, Fancy Boxes, Ivory, and Papier-mache Goods, Japanned ware, Binding of Books, Fans, Leather Work, etc., etc.

Directions.—Cover the picture entirely (taking care not to go beyond the outlines) with a slight coat of fixing varnish; then put the picture on the object to be ornamented, being careful to place it properly at once, in order not to spoil it by moving. The varnish newly applied being too liquid, the picture should be left to dry eight or ten minutes, and placed on the object to be ornamented when just damp enough to be still adherent: this done, cover the back of the picture with a piece of cloth steeped in water, then, by means of a knife or pen-holder, rub it all over, so as to fix every part of it; then remove the piece of cloth and rinse the paper with a paint brush steeped in water; at the end of a few minutes the paper will come off, leaving the painting transferred.

Care must be taken that the piece of cloth, without being too wet, should be sufficiently so for the paper to be entirely saturated. The picture must now be washed with a wet paint-brush, and dried very lightly with some blotting paper. The ornamented-article should, after this, be put near the stove or any other warm place, to make it dry well and to improve the adhesiveness of the pictures. The polishing varnish should not be applied until the next day, keeping the pictures in the meantime carefully out of the dust. The latter varnish should be put on as lightly as possible.

If dark-colored objects are to be ornamented, such as bindings of books, Russian leather, leather bags, etc., the picture must first be covered with a

mixture of white lead and turpentine, following the outlines of the design and covering it entirely. When this coat is perfectly dry proceed according to the above instructions.

To print on silk, paper, or materials that cannot bear washing after the process, proceed as follows: Cover the picture entirely with a light coat of fixing varnish and let it dry for an hour or two; then pass a sponge, lightly damped, over the whole surface of the paper, in order to take away the composition which is on it in the blank parts, and which often cleans the material.

When the paper is dry, re-varnish the picture, and transfer it to the material by means of a paper cutter, avoiding the employment of cloth or anything damp; then, with a paint brush slightly steeped in water, wet the paper lightly, and leave it a full quarter of an hour on the object before removing it.

To remove a spoiled print, rub it with a soft rag dipped in turpentine.

Our readers will at once appreciate the merits of this invention, the facility with which it can be applied, as well as its numerous applications.

Decapitations and Curtailments

Are riddles somewhat of the nature of the Logogriph. In the first, the omission of the successive initials produces new words, as,—Prelate, Relate, Elate, Late, Ate. In the curtailment the last letter of the word is taken away with a similar result, as,—Patent, Paten, Pate, Pat, Pa. Of like kind are the riddles known as variations, mutilations, reverses, and counterechanges. A good example of the last-named is this:—

“Charge, Chester, charge: on, Stanley,
on,

Were the last words of Marmion.”

Had I but been in Stanley's place,
When Marmion urged him to the chase,
A tear might come on every face.

The answer is onion—On, I on,

Deer Skins—To Dress.

Put the skin into the liquid while warm, viz.: eight quarts rain water, to one pint soft soap. Warm it. Then punch the hide, or work it with a soft stick and let it lie one day. It is then to be taken out and wrung—rolled between two logs—or even a wringing machine will be better. Then stretch it until it is dry, in the sun is best, or by a hot fire. Then oil it thoroughly with any oil convenient. It should then be treated to the same bath of suds (heated quite warm), and lie another day. Then pull it out and dry as before. Any oil will do, but good fresh butter is better than anything else. Rub with ochre, getting a splendid yellow color.

Deer Skins—Oil Dressing.

For curing deerskins etc., take the green hide, as soon as removed from the animal, and grain it. This is done by getting a beam seven or eight inches through and six to eight feet long, with two legs in one end and the other resting on the ground so that it will stand at a steep slant. The beam should be of hard wood, should be clean and smooth and with no ridges on it. Use a knife, the corners of which are whet smooth so as not to cut the skin. Set down the upper end of the beam against your body and lay on the skin, hair side down and take off all the unequal substances before you turn the hair side up. Then commence to grain by beginning with the neck of the skin next to you, shoving it against the hair, holding firmly and using some strength it will soon begin to go and bring a streak of grain. In this way hides are grained when green; when dry they have to be soaked in line and water until mellow, and then treated the same as a green hide.

Deer Skins—Tanning and Buffing for Gloves.

For each skin, take a bucket of water, and put into it one quart of lime;

let the skin or skins lie in this three or four days; then rinse in clean water, hair, and grain; then soak them in cold water to get out the glue; now scour or pound in good soap suds for half an hour; after which take white vitriol, alum, and salt, one tablespoon of each to a skin; this will be dissolved in sufficient water to cover the skin and remain in it for twenty-four hours; wring out as dry as convenient; and spread on with a brush half a pint of currier's oil, and hang in the sun about two days; after which you will scour out the oil with soap suds, and hang out again until perfectly dry; then pull and work them until they are soft; and if a reasonable time does not make them soft, scour out in suds again as before; until complete. The oil may be saved by pouring or taking it from the top of the suds, if left standing a short time. The buff color is given by spreading yellow ochre evenly over the surface of the skin, when finished, rubbing it in well with a brush.

Dentifrice—Myrrh.

Myrrh, one ounce; cuttle-fish bone, 4 ounces; orris, 3 oz. Mix.

Dentifrice—Cartwright's.

Of prepared chalk, 1 oz.; orris, 1 oz.; castile soap, 1 drachm.

Dentifrice—Camphorated.

Precipitated chalk, 1 lb.; powdered orris root, $\frac{3}{4}$ lb.; powdered camphor, $\frac{1}{4}$ lb.

Dentifrice—Charcoal.

Fresh charcoal in fine powder, 7 lbs.; prepared chalk, 1 lb.; orris root, 1 lb.; catechu, 1 lb.; cassia bark, 1 lb.; myrrh, $\frac{1}{4}$ lb. Sift.

Dentifrice—Cuttle Fish.

Powdered cuttle-fish, 1 lb.; precipitated chalk, 1 lb.; powdered orris, 1 lb.; otto of lemons, 1 oz.; otto of neroli, 1 drachm.

Diamonds—Imitation.

Imitation diamonds are plentiful enough, and in their fabrication considerable skill is often displayed, and the imitation is at times very clever; it appears, however, that there is a prospect that real diamonds will eventually be manufactured. Hitherto though chemists have had no difficulty in discovering of what diamonds were composed, they have never succeeded in producing them. Diamonds are chemically the same as charcoal, and they may be readily converted into it, but the more satisfactory transmutation of charcoal into diamonds proved a most tantalizing mystery. At last we hear of the secret being discovered, and the discoverer, instead of privately profiting by it, makes it public. It is said to be simply this: If a current of chlorine be made to pass through cast-iron, when in a state of fusion, perchloride of iron is formed, which disappears by evaporation, leaving the carbon of the metal at liberty in a crystallized state, forming either black, colorless or colored diamonds.

Din of Shops—To Prevent.

A rubber cushion under the leg of work-benches in manufactories, is a cheap relief from the deafening din of noisy shops. Chambers' Journal describes a factory where the hammering of fifty coppersmiths was scarcely audible in the room below, their benches having under each leg a rubber cushion. We have seen the same effect produced by standing the legs of the bench in nail-kegs filled with sand, by which means all vibration and shock was prevented.

Dishes—How to Wash.

First make sure before breakfast or dinner that there is plenty of water in the boiler, and also in the tea-kettle. After the table is cleared, the tablecloth brushed off and neatly folded away,

and the dining-room disposed of, proceed with your dishes. First, take a large dish-pan, put into it a piece of soap, and pour over the soap three or four dipperfuls of hot water from the boiler. Then add two or three dipperfuls of cold soft water. Then the dish-cloth. The water should now be so cool as not to turn the hands red when put into it. Take the dish-cloth and rub from the soap the melted surface, and put the remainder away. Wash a dish at a time and pass it to another pan. When all are done, or the pan is full, take the tea-kettle and pour over enough hot water to thoroughly rinse and heat them. Now take from the water, one at a time, and place them bottom side up upon a tray or pan to drain. If they have been properly washed, this hot rinsing water will run off or evaporate in a minute, leaving the dishes nearly dry. However, they should now be wiped with a clean, dry towel, and put away. Dishes must be washed in soft water. Especially is this necessary where soap is used, and soap is really indispensable in washing dishes properly. The dishes should be scraped free from grease, crumbs, bones, etc., before commencing to wash them. A neat house-keeper will have the same dish-cloth in use until it is worn out, when it should be put into the ragbag. Never allow the dish-cloth to be used for anything else but washing dishes.

Dish for Dishwashing—How to Make.

A handy dish for this purpose can be secured by making it oval in shape, twenty inches by twelve inches at the bottom, twenty-four inches by sixteen inches at the top and six inches deep; eleven inches from one end there is a tin partition, dividing the pan into two compartments, the smaller for washing, the larger for rinsing the dishes in hot water.

Dish Covers—To Clean.

Silver and plated ones should be polished with plate powder and a leather; those made of block tin should be first rubbed with sweet oil, and then dusted over the oil with fine powdered whitening, and polished with a soft rag. If the handles are movable, take them off while cleaning.

Disinfectants for Sinks, Drains, Etc.

A little charcoal mixed with clean water thrown into a sink will disinfect and deodorize it. Chloride of lime and carbolic acid considerably diluted, if applied in a liquid form, are good disinfectants. The air of a bedroom may be pleasantly sweetened by throwing some ground coffee on a fire shovel previously heated.

Dock Weeds—To Eradicate.

Cut them off close to the ground when the tops are fully out, but the seed not fully formed, and they are done for. The stalk dies in the ground; but you must cut them so close to the ground that you leave no leaves on the stalk, else they will not die. The end of June is generally about the best time to cut them; but it depends on the season. In the pasture fields they are soon cut with a scythe. In wheat and meadows they have to be cut with a knife.

Dogs—Management of.

All dogs are capable of education, although it is certain that great difference in intelligence is known to exist between individuals even of the same species. There are stupid dogs and clever dogs, as there are clever and stupid members of the human family. Clever or stupid, however, dogs kept in a dwelling-house ought to be taught good manners; to be silent, and to lie down when so ordered; to refrain from leaping on the knees of strangers; and not to sit watching and staring at meals, as if coveting the food

partaken of by their master and mistress. To make them behave well, they must be taught when young; and one of the best modes of doing this is to let them be certain of being punished if disobedient and rewarded when dutiful. A clever dog will soon be able to comprehend and act upon a look, a sign, or a word.

Dogs—Feeding.

The dog is naturally carnivorous, but when domesticated he does not refuse farinaceous food, especially if early accustomed to it. Those who keep dogs ought not to leave their feeding to the scraps they may chance to obtain at the breakfast or dinner table; moreover, irregular supplies are injurious to the animal's health. The dog ought to have his regular meals, and his food should be chiefly flesh of some kind, boiled and cold; when given raw, it is apt to produce some ferocity of temper, and to cause him to have an offensive smell. If possible, the dog should be induced to eat some farinaceous food along with his meat. Liver is not proper food for a dog, unless occasionally, as it acts as an aperient; but any ordinary pieces of meat or tripe will suit very well. The dog ought to be fed only once a day if he get as much as he requires, and this allowance should be given in the morning or forenoon, but as he requires to drink frequently throughout the day, care must be taken to give him plenty of pure water.

Dogs—To Keep Healthy.

To maintain a dog in vigorous health he must have abundant exercise in the open air, and be kept clean. Washing him keeps him in health, frees him from irritation of the skin, and destroys fleas. Every house-dog or lap-dog ought to be washed once a week with soap and water, and delicate dogs ought afterwards to be combed and brushed and dried with a hard cloth.

Washing is absolutely indispensable—independently of the consideration of health—where the dog has a thick coat of hair, as the Scotch terriers have; he is apt to contract an offensive smell, the causes of which, for the animal's own sake, as well as his owner's, ought to be at once removed. When soap is used in washing, a thorough rinsing must follow, for if there is the least particle of soap left, it will prevent their licking themselves.

Dogs—Teaching to go Errands.

This accomplishment may often be put to great practical use, and it is an excellent plan to teach all dogs, which are large enough to be of any service in this manner, to carry baskets or parcels when accompanying their masters. The mode of training is very simple, consisting of merely placing the article in the dog's mouth, and when he lets go of it, give him a slight box on the ear and replace the article in his mouth. Whatever is given him to carry should be of such a form as to be grasped easily by him without hurting his mouth or teeth. The weight should at first be very light and never more than he can easily carry. Most dogs will take a real pleasure in carrying articles in this manner, and they seem to feel the responsibility attached to their duty, for they will carry their own or their master's dinner without attempting to appropriate any portion of it until the proper time when their share shall be given them. In teaching dogs to carry food, however, it is necessary to take a little special pains to overcome their instinctive inclination to eat it. A good plan is to place the articles in a covered basket which they cannot open, and when the dog has learned to carry an ordinary parcel give him this. If he attempts to get at the food, which he readily detects by his sense of smell, box his ears. By-

and-by reward him with the food, and then try him with a basket from which he can abstract the contents; if he tries to do so punish him slightly, never permitting him to steal the food. If a dog ever deserves a reward for well doing he certainly does in this case, for it is too bad to tantalize him with the smell of some dainty and then not let him finally have something for his good conduct.

To make a dog carry articles from one person to another it is only necessary for two persons to take their position at some distance from another. One gives the dog some article, saying, "Go, sir," at the same time. As the first says this, let the other person call or whistle to the dog. Now let this one give the dog something and let the other one call him, and so on back and forth until he will go from one to the other at the command, "Go, sir."

It is not very difficult to teach a dog to go on errands. Suppose you wish him to go to market for you in the morning; take him with you regularly for a few mornings, letting him carry the basket. In a few days he will understand when you start where it is you propose to go, and will, perhaps, run on ahead and arrive there some minutes before you do. It would be well on all occasions before starting to give the command, "Go to market," which will accustom him to it.

Dogs—Hydrophobia, Rabies or Canine Madness in.

One of the earliest symptoms of rabies in the dog is restlessness. He is constantly running round and round before he will lie down; his countenance becomes anxious; his eyes bloodshot; he fancies that he sees objects around him which have not real existence, and he snaps at the empty air; his fondness for his master increases, and with it his propensity to lick the hands and face—a filthy practice at any time, and

one most dangerous;—the appetite becomes depraved, his natural food is neglected, and, at the same time, every sort of filthy trash is greedily devoured; eating his own excrement is an early symptom, and so sure a one, that the moment a dog is seen doing so he should be destroyed, or, at all events, carefully confined. For no curative treatment will avail, when a dog is seized with this terrible disease.

Dog—How to tell the Age of (Until 6 Years of Age)

A dog has a very visible mark in his teeth, as well as a horse, which mark does not disappear totally until he is very nearly or fully 6 years old. Look at the 4 front teeth, both in the upper and lower jaw, but particularly at the teeth in the upper jaw, for in those 4 front teeth the mark remains the longest. At 12 months old you will observe every one of the 4 front teeth, both in the upper and under jaw, jagged and uneven, nearly in the form of a fleur-de-lis, but not quite so pointed at the edges of the jags as a fleur-de-lis is. As the dog advances in age these marks will wear away, gradually decrease and grow smoother and less jagged every year. Between 3 and 4 years old these marks will be full half worn down, and when you observe all the 4 front teeth, both in the upper and lower jaw, quite worn smooth and even, and not in the least jagged, then you may conclude that the dog is nearly if not fully 6 years old. When those marks are worn quite flat and even, and those teeth quite level and even, you can no longer judge the age of a dog.

Dog (Puppy)—How to Choose.

Sportsmen assure us that, in order to make choice of a puppy from among a number of others, it is better to leave the choice to the mother herself. In carrying them back to their bed, the first one she takes up will always

be the best; if we pretend to set fire to the bed on all sides, then the one she will try to rescue first.

Dogs—Best Bed for.

The best bed which can be made for a dog consists of dry, newly made pine shavings, a sackful of which may be had at almost any carpenter's shop. The dog is delighted in tumbling about in them until he has made a bed to suit himself. Clean wood shavings will clean a dog as well as water, and fleas will never infest dogs that sleep upon fresh pine shavings; the turpentine and resin in new pine soon drive them away.

Dogs—Eggs-Eating.

To cure this, blow an ordinary hen's egg, expelling the entire contents, stop up one end of the shell with wax. Then fill it from the other end with strong spirits of ammonia, or 'Hartshorn'. Seal that end and then put it where the dog can get it. If he crushes it, he will never be desirous of repeating the luxury of egg eating. After the dog has had one ammoniacal feast, a little of the fluid poured into the nest, will remind him of the fact, that he once was burnt, and also will serve to cleanse the nest from vermin.

Dog Distemper—Remedy for.

Distemper in dogs is characterized by a running from the nose and eyes, and a short dry cough, followed by a wasting of the flesh, and loss of strength and spirits. At length the brain suffers, and fits, paralysis of the extremities, or convulsions come on. A handful of common fine salt thrown down the throat and the mouth kept closed until it goes down, is an infallible remedy. One dose is enough in the early stage of the disease; if given later, it may have to be repeated.

Dogs—Fleas on.

Suds made from carbolic soap will

rid a dog of fleas. Another remedy is to rub olive oil into the dog's coat, so as to saturate the hair to the surface of the skin; then to let it remain on for half an hour, and wash it well out with the best yellow soap and warm water. A small portion of any sweet oil brushed into the coat of a woolly dog will effectually prevent its being infested with vermin.

Dogs—Mange in,

Is similar to the itch in man, and requires the same treatment. Wash with soft soap and apply sulphur ointment.

Dogs (White)—To Wash.

Make a good lather of white soap with a little spirit of turpentine; wash the dog as quickly as possible in this while it is warm, but not hot, taking care not to let the soap lather get into its eyes. Have a tub with clean tepid water, in which a little blue has been dissolved, ready; when the coat is clean dip the dog into the blue water and rinse out the soap. Then rub it well in a clean sheet before the fire; if the hair is long comb it out and brush it as it dries. The turpentine will kill fleas unless the dog is much infested with them.

Dog Skin—To Tan with Hair on.

Procure a cask, or barrel, holding from fifteen to eighteen gallons, in which make a liquor of six gallons of water, one and a half pounds of alum, five pounds of salt; in this, soak the skin about ten hours, or until it is in its original condition. Then place the skin on a board and carefully remove all the flesh and grease, finishing by scraping with a dull knife and rubbing with sand paper, or better, pumice stone. Add to the alum and salt liquor six gallons of sour oak or hemlock liquor, which can be procured of any tanner (or leached from pulverized bark), in which again place the skin.

It will tan in about two weeks, becoming as soft and pliable as cloth.

Domestic Rules.

Mrs. Hamilton, in her *Cottagers of Glenburnie*, gives three simple rules for the regulation of domestic affairs, which would, if carried into practice, be the means of saving time, labor and patience, and of making every house a "well-ordered" one. They are:

1. Do everything in its proper time.
2. Keep everything to its proper use.
3. Put everything in its proper place.

Doors—To Prevent Creaking.

Apply a little soap to the casing. Take lard, soap and black lead, equal parts, mix and apply to the hinges.

Door Plates (Silver)—To Clean.

To clean silver door plates, use a weak solution of ammonia in water, applied with a wet rag. This wash is equally useful for silver plate and jewelry.

Draining.

A cheap mode of draining is, to use the plow, taking a strip of land 15 or 20 feet wide, and leaving the dead furrow where the drain is to be. By plowing several times the dead furrow may be sunk nearly 2 feet, and from the bottom of this a trench, the width and depth of a spade, may be thrown out and a drain made of three fence boards (4 inches wide will be sufficient) in the shape of the letter V, may then be put into this branch, and the plowing reversed till the ground is made level. This method has a double advantage:—It is a cheaper method than to dig the full depth by hand, and the work is cheaper than tile. By turning up and thus loosening the subsoil to that depth on each side of the drain, the water would find its way into the drain more readily than if only a narrow ditch had been dug from the surface

down, leaving the sides unmoved and almost impervious to water.

Drawing—Crayon.

Drawing in crayon will be found much more convenient than in oil or water colors, as you are spared the delay of waiting for them to dry. Crayon materials or pastels are put up in boxes of necessary tints for portraits or landscapes, and, by blending, every shade and color can be obtained as in oil painting. The pupil can purchase prepared paper or board. A good paper for portraiture is pumice paper. Your sketch should be made as in penciling, and then proceed to the shading. For a head, we consider the drapery and groundwork—and here allow me to advise all to study penciling before attempting crayons; also, to begin by painting easy things.

The picture being drawn, proceed to fill in the background. Let the tints be varied, if in a colored crayon, according to the ideal or originals from which you are designing it. For example, if the lights in your picture are on the right side, the darkest shade in the groundwork must be placed on the right, and vice versa. See that the background be smooth, the dark shades of rich brown or green, and the light of gray, French blue, etc. Then:

Paint the dark shades with black crayon and rub it in with a soft cork. The cork pencils ready prepared are best for that purpose, or rubbers of soft leather will answer.

Put in the light, clear shades as they belong with the soft and medium crayons, using care in blending to avoid a dingy and dirty appearance.

Lay on the brown and other colors. When it is necessary to put brown over black, do not rub the two together; use your finger as well as the cork.

In finishing the picture use hard crayon, laying on in lines, and blend with cork.

Having a variety of colors for other styles of painting, you can use your judgment in selecting from your boxes. You must have a box of soft and a box of hard crayons to obtain what you need. Try your colors first on a piece of waste paper.

Do not expect it will be right by laying on colors once. You must work line over line many times and carefully. Do not soil your picture in the delicate parts. In addition to your colors in boxes, furnish yourself with black and white crayons of different tones, and a supply of dry carmine. We prefer the lump to the pencil. French blue is much used to produce clear lights. The paper must be some available tint, as its color appears through almost all portions of the work. A low-toned, olive tint has been found very desirable. Have your paper an inch or two longer than the proposed picture; sketch the design lightly with black crayon No.1, making sky and broad tints with the flat surface of broken pieces of crayon (1 and 2) rubbed in with the finger. The breadths of the nearer and remote distances are put in with broken pieces, blended together. Mountains, trees etc., are drawn in with black crayon, then tinted and glazed with colored crayon.

Drawing (Crayon)—Mode of Fixing by Steam.

Get a tin vessel with a tight-fitting lid, and a pipe projecting from the side, having a head perforated with holes. Into this vessel put two ounces of the strongest alcohol and two drachms of powdered sugar-candy. Boil it over a spirit lamp. Direct the steam to the back of your picture, until the papers and colors are perfectly saturated.

Drawings (Pencil)—To Preserve.

Best alcohol, two ounces; camphor,

four grains; after dissolved, to be applied, if on ordinary drawing paper, to the back; if on Bristol board, coat it rapidly on the drawing side; then hang up to dry.

Dresses—To Preserve the Color of When Washing Them.

We need scarcely say that no colored articles should ever be boiled or scalded. The colors of merinos, mousseline-de-laines, gingham, chintzes, printed lawns, &c., may be preserved by using water that is only luke warm; making a lather with white soap before you put in the dress, instead of rubbing it on the material, and stirring into a first and second tub of water a large tablespoonful of ox-gall. The gall can be obtained from the butcher, and a bottle of it should always be kept in every house. No colored articles should be allowed to remain long in the water. They must be washed fast, and then rinsed through two cold waters. In each rinsing water stir a teaspoonful of vinegar, which will help to brighten the colors; and after rinsing, hang them out immediately. When ironing-dry (or still a little damp), bring them in; have irons ready heated, and iron them at once—as it injures the colors to allow them to remain damp too long—or sprinkle and roll them up in a cover for ironing next day. If they cannot be conveniently ironed immediately, let them hang till they are quite dry, and then dampen and fold them on the following day, a quarter of an hour before ironing. It is better not to do colored dresses on the day of the general wash, but to give them a morning by themselves. They should only be undertaken in clear bright weather. If allowed to freeze, the colors will be irreparably injured. If you get from a shop a slip for testing the durability of colors, give it a fair trial by washing it as above; after-

wards pinning it to the edge of a towel, and hanging it to dry. Some colors (especially pinks and light greens), though they may stand perfectly well in washing, will change as soon as a warm iron is applied to them; the pink turning purplish, and the green bluish. No colored article should be smoothed with a hot iron.

Dresses—To Render Children's Uninflammable.

The following simple suggestions are worthy of observation:—Add one ounce of alum to the last water used to rinse children's dresses, and they will be rendered uninflammable, or so slightly combustible that in event of coming into contact with fire, they would only smoulder away very slowly, and not burst into flame. This is a simple precaution, which should be adopted in families. Bed curtains, and linen in general, may also be treated in the same way. Tungstate of soda and chloride of zinc have been recommended for the purpose of rendering any article of feminine dress incombustible. Any druggist will intimate to the purchaser the manner in which the tungstate of soda should be employed.

Dress—To Bleach a Faded.

Wash it well in hot suds, and boil it until the color seems to be gone, then wash, and rinse, and dry it in the sun; if still not quite white, repeat the boiling.

Dress—Woman's.

It is well known that a loose and easy dress contributes much to give the sex the fine proportions of body that are observable in the Grecian statues, and which serve as models to our present artists, nature being too much disfigured among us to afford any such. The Greeks knew nothing of those ligatures and bandages with which our bodies are compressed.

Their women were ignorant of the use of corsets, by which ours distort their shape instead of displaying it. This practice, carried to excess as it is at present, is in bad taste. To behold a woman cut in two in the middle, as if she were like a wasp, is as shocking to the eye as it is painful to the imagination. Such a deformity would be shocking in a naked figure; wherefore, then, should it be esteemed a beauty in one that is dressed? The effect of tight-lacing is to prevent the natural motion of the ribs, thus impeding respiration, and the inspiration of air being insufficient, the system requires quicker respiration, which disturbs the lungs and excites the heart. Everything that confines and lays nature under restraint is an instance of bad taste. This is as true in regard to the ornaments of the body as to the embellishments of the mind. Life, health, reason, and convenience ought to be taken first into consideration. Gracefulness cannot subsist without ease. High-heeled boots and shoes also are very injurious, as the whole weight of the body is thrown forward on the toes, and the strain on the instep and contraction of the muscles at the back of the heel are very great.

Drills and Gravers—To Temper.

When the graver or drill is too hard, which may be known by the frequent breaking of the point, temper as follows: Heat a poker red hot, and hold the graver to it within an inch of the point, waving it to and fro till the steel changes to a light straw color; then put the point into oil to cool, or hold the graver close to the flame of a candle till it be of the same color and cool in tallow; but be careful either way not to hold it too long, for then it will be too soft, in which case the point will be blue, and must be broken off and whetted and tempered anew.

Drills (Jeweler's)—To Temper.

Select none but the finest and best steel for your drills. In making them never heat higher than a cherry red, and always hammer till nearly cold. Do all your hammering in one way, for if, after you have flattened your piece out, you attempt to hammer it back to a square or a round you spoil it. When your drill is in proper shape heat it to a cherry red, and thrust it into a piece of resin, or into quicksilver.

Drowned Person—To Raise the Body of.

In a recent failure to recover a body drowned in a river in New Jersey, a French Canadian undertook the job, and is reported to have proceeded after the following scientific manner: Having supplied himself with some glass gallon jars and a quantity of unslaked lime, he went in a boat to the place where the man was seen to go down. One of the jars was filled half full of lime, then filled up with water and tightly corked. It was then dropped into the water, and soon after exploded at the bottom of the river with a loud report. After the third trial, each time in a different place, the body arose to the surface and was secured.

Dryer—Japan.

Take linseed oil, 1 gallon; put into it gum shellac, $\frac{3}{4}$ lb.; litharge and burned Turkey umber, each $\frac{1}{2}$ lb.; red lead, $\frac{1}{2}$ lb.; sugar of lead, 6 oz. Boil in the oil till all are dissolved, which will require about four hours; remove from the fire, and stir in spirits turpentine 1 gallon, and it is done.

Another.—Linseed oil, 5 gallons; add red lead and litharge, each $3\frac{1}{2}$ lbs.; raw umber, $1\frac{1}{4}$ lbs.; sugar of lead and sulphate of zine, each $\frac{1}{2}$ lb.; pulverize all the articles together, and boil in the oil till dissolved; when a little cool, thin with turpentine, 5 gallons.

Dryer—For Painting.

Vitreous oxide of lead (litharge), is of no other use in painting than to free oils from their greasy particles, for the purpose of communicating to them a drying quality. Red litharge, however, is preferred to the greenish yellow; it is not so hard and answers the purpose better.

When painters wish to obtain a common color of the ochre kind, and have no boiled oil by them, they may paint with linseed oil, not freed from its greasy particles, by mixing with the color two or three parts of litharge, ground on a piece of porphyry with water, dried and reduced to fine powder, for 16 parts of oil. The color has a great deal of body and dries as speedily as if mixed with drying oil.

Drying Oil—Colorless.

Boil linseed oil for two hours with 3 per cent. of red lead, filter it, and then expose it to sunlight in large, shallow vessels, frequently renewing the air above.

Ducks.

Of the various breeds of ducks the Pekins are found in about the proportion of ten Pekins to one of any other kind. Next to them come the Rouens, and of the remaining breeds but very few are kept.

Ducks—To Fatten.

Give them oats, meal and barley. This feed puts on flesh rapidly. Shut your ducks up in a good coop, with no runway. They must have no exercise, for that gives health, not fat. Feed them with bran, oats, oat-meal, or barley-meal, cooked, put in a shallow vessel; give gravel, water, cabbage leaves or a sod of grass. Some feed Indian meal, and proceed with the cramming process; but this is unnecessary, as young ducks will eat all the food put before them, and in that way cram themselves without assistance. Let

whatever food you give them be cooked and fed warm.

Dwellings—Damp.

It is obvious that, as all external walls are exposed to more or less wet weather, our efforts will be most usefully directed to preventing the moisture from entering at the outer face of the wall; or if we cannot prevent its penetrating the surface, then we must apply ourselves to hindering its passage quite through the wall.

The use of materials which have a very hard face, such as the best sorts of building-stones and bricks, will, if the joints of the work are well "pointed," that is, filled with mortar, keep out moisture effectually; but when bricks of a porous quality are of necessity used, it is often the best safeguard to "render" the walls with Portland cement. It is important to notice that not only the face, but the top, of every wall must be protected. It is to keep the wet from soaking into the body of the wall, that every window has a sill of hard stone or some other impervious material, and that all parapets or other unprotected walls, require a coping.

Hollow Walls.—If the surface is once passed, the thicker the wall, the longer it is in being thoroughly soaked, and the less wet will penetrate it from short rains; but almost the thickest solid wall will sooner or later give passage to continuous moisture if its outer face be once penetrated; and experience has constantly shown that a hollow wall is drier than a solid wall of the same thickness. When building in stone, it is especially desirable to have an inner lining of brick, with a clear space of from two to four inches between it and the wall, and as few solid points of contact between the two as possible.

Another Method.—In some cases, contact between the outer and inner wall can be almost entirely prevented

by connecting them with iron cramps. When this is not done the greatest care must be taken to reduce the points of connection to a minimum, to employ hard materials at those points, and even to break the continuity of the communication by leaving those bricks which are used as ties clear at both ends. It is almost needless to add that the cavity must be kept clear of mortar and rubbish. A less perfect mode of preventing annoyance from damp than by building hollow walls, but a favorite expedient, is to "batten" the inner face of the wall; that is to say, to place strips of wood against it, cover them with laths, and plaster on the lathing. By this means, the inner face next the room is usually preserved from the actual appearance of moisture; but as it is possible that the whole wall behind the battening, if solid, may be moist all the time, this is an inferior method to the hollow wall. For very exposed situations, or very porous materials, a combination of the two, that is, a hollow wall, battened in addition, is to be recommended.

Damp Course.—Where moisture is likely to enter from the ground on which a house stands, it is most desirable to cut off the foot of the wall from that communication with the upper part by a "damp course," composed either of slate laid in cement, or of some sort of asphalt or coal-tar, or of vitrified tiles made for the purpose; and this should go quite through the external walls (in damp soils it should be used also in internal walls) below the level of the lowest floor. Where earth comes against the walls to any extent, it is desirable to have either an open area, or what is called a "dry area," to prevent its actually touching the walls; and in wet soils an intercepting drain outside that area will also be of service.

Basement Floors.—In good build-

ings, it is often customary to cover the whole surface of the earth under all floors with a layer of concrete or asphalt, or some other hard body; and this, no doubt, promotes the dryness of the building to a great extent. Solid floors, that is floors of stone, tile, or brick, should always be laid on a pretty thick layer of concrete or dry rubbish, not directly on the earth.

Rain Dripping.—A very fertile source of dampness is "drip." Even the small amount of rain-water falling on a window, and which, after draining down, finally drips from the window-sill, has a great tendency to render the wall immediately below that sill damp; for whenever the wind blows toward the wall, every drop is likely to be blown against its surface. This, by the by, shows the folly of our making the wall immediately under window-sills thinner than elsewhere, which it is customary to do for convenience' sake.

The drip from a roof not furnished with a gutter, or from a veranda that is too shallow, or, worst of all, from a defective rain-water pipe, is, however, larger in quantity, and more exposed to wind than that from a simple window-sill; and this source of dampness often remains for a long time undetected, as the place where the water falls against the wall will often be distant from that where it escapes.

Air Circulation.—As a general rule, it may be laid down that there is no auxiliary so powerful in diminishing the amount of such moisture as can not be actually shut out from any part of a building, as a free circulation of air. Let, therefore, openings communicating with the cavities and vacant spaces of a house be freely provided. The hollow space in a roof, the space between floor and ceiling, and the hollow under a floor, should all enjoy a free circulation of air. It is even desirable, in building hollow walls, to attempt to

promote a circulation of air in the cavity, and in all these cases it should be remembered that two openings are requisite to each hollow, in order to give much hope of a current or change of air. Where there is no ventilation under the lowest floor of a house, the joist and timbers will soon begin to decay. This will be accelerated by covering the floor with oil-cloth, or similar non-porous coverings. Ivy or creepers against external walls, and even trees growing close to them, tend to promote moisture by cutting off the circulation of air.

Pipes.—The failure of any portion of the arrangements for water supply or drainage will be pretty sure to lead to damp. As general rules, no drain should ever be permitted to pass under any part of a dwelling house, and when this cannot be prevented, the drain should be so laid without being covered up with earth, that every part of it which is under the floor of the house can be reached at once. The water pipes, on the other hand, should be kept well within the house for warmth's sake, and where they leave it, should be at a level of not less than three feet below the surface, for protection against frost. When practicable, water pipes should be left where they can be seen and got at. Iron is preferable to lead for their material, and the arrangements, should always include the means of shutting off water supplies in very frosty weather.

To Choose a Dry House it is wise to try to select a wet day for looking over a house, for if the day be fine, and the weather dry, damp spots as well as many other defects may be easily overlooked. Let the intending tenant look for the existence of damp courses, dry areas, and ventilation under floors; let him avoid a ground floor that is not a little raised above the earth outside, unless he is sure there is a good cavity under it well ventilated.

In a word, in choosing a house in which a man intends himself and his family to live, and particularly on first moving into a newly built residence, he should look out for the indications of damp as pointing out the presence of one of the most serious enemies to the comfort, if not to the continuance, of their life, which he can have to encounter.

Dyeing—General Observations.

The filaments from which stuffs of all kinds are fabricated are derived either from the animal or vegetable kingdom. We recognize the former by the property they possess of liberating ammonia on being treated with potash; while the latter affords a liquor having an acid reaction under the same treatment. The animal kingdom furnishes three varieties—silk, wool, and the furs, of various animals; the vegetable kingdom also three—flax, hemp, and cotton.

The Various Shades produced by coloring matters may be classed in one or other of the following groups:—

- | | |
|----------------------|------------|
| 1. Blues..... | } Simple. |
| 2. Reds..... | |
| 3. Yellows..... | |
| 4. Violets..... | } Binary. |
| 5. Orange colors.... | |
| 6. Greens..... | |
| 7. Compound colors.. | } Ternary. |
| 8. Black..... | |

Some colors adhere at once to the stuff, and are called substantial colors; while others require that the material to be dyed should undergo some previous preparation in order to render it permanent. The substances used to fix the coloring matters are called Mordants, which should possess four qualifications:

1. An equal affinity for the fibre of

the material and the coloring matter.

2. They should be incapable of injuring or destroying either by prolonged action.

3. They should form, with the color, a compound capable of resisting the action of air and water.

4. They should be capable of readily conforming to the various operations of the dyer.

Dyeing—Mordants for.

For the reasons above given, the acetate or tartrate of iron is preferable to the sulphate; and the acetate or tartrate of alumina to alum. For reds, yellows, greens and pinks, aluminous mordants are to be used. For blacks, browns, and violets, the acetate or tartrate of iron must be employed. For scarlets use a tin mordant, made by dissolving in strong nitric acid one-eighth of its weight of sal ammoniac, then adding by degrees one-eighth of its weight of tin, and diluting the solution with one-fourth of its weight of water.

Dyes—Fixing.

Mr. Kipping of Manchester, England, has a new process of fixing dyes. He dissolves 20 ounces of gelatine in water and adds 3 ounces of bichromate of potash. This is done in a dark room. The coloring matter is then added and the goods submitted thereto; after which they are exposed to the action of light. The pigment thus becomes insoluble in water and the color is fast.

Dye Calico, Linen and Muslin.

Blue.—Wash well to remove dressing, and dry; then dip in a strong solution of sulphate of indigo—partly saturated with potash—and hang up. Dry a piece to see if the color is deep enough; if not dip again.

Saxon Blue.—Boil the article in alum, and then dip in a strong solution of chemical blue.

Buff.—Boil an ounce of anatto in

three quarts of water, add two ounces of potash, stir well; put in the calico while boiling, and stir well for five minutes; remove and plunge into cold water, hang up the articles without wringing, and when almost dry, fold.

Pink.—Immerse in the acetate of alumina mordant, and then in the coloring of a pink dye.

Green.—Boil the article in an alum mordant, and then in a solution of indigo mixed with any of the yellow dyes until the proper color is obtained.

Yellow.—Cut potato tops when in flower, and express the juice; steep articles in this for forty-eight hours; or dip in a strong solution of weld after boiling in an aluminous mordant. Turmeric, fustic, anatto, etc., will answer the same as weld.

Dye—Cloth.

Black.—Impregnate the material with the acetate of iron mordant, and then boil in a decoction of madder and logwood.

Madder Red.—Boil the cloth in a weak solution of pearlash—announce to a gallon of water—wash, dry and then steep in a decoction of bruised nutgalls. After drying it is to be steeped twice in dry alum water, then dried, and boiled in a decoction made of three-quarters of a pound of madder to every pound of the article. It should then be taken out and dried, and steeped in a second bath in the same manner. When dyed, the articles should be washed in warm soap and water, to remove a dun-colored matter given out by the madder.

Scarlet.—Three-quarters of a pint of a tin mordant, made by dissolving three pounds of tin in sixty pounds of hydrochloric acid, is added to every pound of lac dye, and digested for six hours. To dye twenty-five pounds of cloth, a tin boiler of seventy-five gallons, capacity should be filled nearly full

with water, and a fire kindled under it. When the heat is 150 degrees Fahr., half a handful of bran and two ounces of tin mordant are to be thrown into it. The froth which rises is skimmed off, the liquor is made to boil, and two pounds and three-quarters of lac dye, previously mixed with a pound and three-quarters of the solvent, and fourteen ounces of the tin solvent, are added. Immediately afterwards two pounds and three-quarters of tartar, and a pound of ground sumach, both tied up in a linen bag, are to be added, and suspended in the bath for five minutes. The fire being withdrawn, five gallons of cold water and two pints and three-quarters of tin mordant being poured into the bath, the cloth is immersed in it. The fire is then replaced, and the liquid made to boil rapidly for an hour, when the cloth is removed and washed in pure water.

Yellow.—Quereitron and weld produce a solid yellow; fustic a very brilliant tint; while turmeric yields a less solid yellow.

Dye—Feathers.

The feathers must be put into hot water, and allowed to drain before they are put into the dye. After they are taken out of the dye, rinse them two or three times, in clear, cold water (except the red, which must only be done once), then lay them on a tray, over which a cloth has been spread, before a good fire; when they begin to dry and unfold, draw each feather gently between your thumb and finger, until it regains its proper shape.

Black.—Use the same as for cloth.

Blue.—Every shade may be given by indigo; or dip in silk dye.

Crimson.—Dip in acetate of alumina mordant, then in a boiling-hot decoction of Brazil wood—and, last of all, pass through a bath of eudbear.

Pink or Rose-Color is given by safflower and lemon juice.

Deep Red.—Proceed as for crimson, omitting the eudbear bath.

Yellow.—Mordant with acetate of alumina, and dip in a bath of turmeric or weld. More or less of the turmeric will give them different shades and a very small quantity of soda will yield an orange hue.

Green.—Mix the indigo liquid with turmeric, and pour boiling water over it; let the feathers simmer in the dye until they have acquired the shade you want.

Lilac.—About two teaspoonfuls of eudbear in about a quart of boiling water; let it simmer a few minutes before you put in the feathers. A small quantity of cream of tartar turns the color from lilac to amethyst.

Dye—Gloves.

Yellow, Brown or Tan Color.—Steep saffron in boiling-hot soft water for about twelve hours; sew up the tops of the gloves to prevent the dye staining the insides, wet the outsides with a sponge dipped in the liquid. A teacupful of dye will do a pair of gloves. The quantity of saffron used must depend on the depth of color required.

Purple.—Boil four ounces of logwood and two ounces of roek-alum in three pints of soft water till half wasted; strain, and let it cool. Sew up the tops, go over the outsides with a brush or sponge twice; then rub off the loose dye with a coarse cloth. Beat up the white of an egg, and rub it over the leather with a sponge. Vinegar will remove the stain from the hands.

Dye—Silk.

Black.—The same as for cloth, but black dyeing is difficult.

Blue.—Wash quite clean, rinse well, and then dip in a hot solution of sulphate of iron: after a short time take it out and rinse again. Have ready in another vessel a hot solution of

prussiate of potash, to which a small quantity of sulphuric acid has been added. Dip the silk in this liquid; on removal rinse in clean water, and expose to the air to dry; or wash well, rinse, ring out, and then dip in the following:—Boil a pound of indigo, two pounds of woad, and three ounces of alum in a gallon of water. When the silk is of a proper color, remove, rinse and dry.

Carnation.—Boil two gallons of wheat and an ounce of alum in four gallons of water; strain through a fine sieve; dissolve half a pound more of alum and white tartar; add three pounds of madder, then put in the silk at a moderate heat.

Crimson.—Take about a spoonful of cudbear, put it into a small pan, pour boiling water upon it; stir and let it stand a few minutes, then put in the silk, and turn it over in a short time, and when the color is full enough, take it out; but if it should require more violet or crimson, add a spoonful or two of purple archil to some warm water; steep, and dry it within doors. It must be mangled, and ought to be pressed.

Lilac.—For every pound of silk take one and a half pounds of archil, mix it well with the liquor; make it boil for a quarter of an hour, dip the silk quickly, then let it cool, and wash it in soft water, and a fine half-violet, or lilac, more or less full, will be obtained.

Madder Red.—Use the dye for cloth.

Yellow.—Take clear wheat bran liquor fifteen pounds, in which dissolve three quarters of a pound of alum; boil the silk in this for two hours, and afterwards take half a pound of weld, and boil it till the color is good. A little nitre used with alum and water in the first boiling fixes the color.

Dye—Wool.

Blue.—Boil in a decoction of log-

wood and sulphate or acetate of copper.

Brown.—Steep in an infusion of green walnut peels.

Drab.—Impregnate with brown oxide of iron, and then dip in a bath of quereitron bark. If sumach is added, it will make the color a dark brown.

Green.—First imbue with the blue, then with the yellow dye.

Orange.—Dye first with the red dye for cloth, and then with a yellow.

Red.—Take four and a half pounds of cream of tartar, four and a quarter pounds of alum; boil the wool gently for two hours; let it cool, and wash it on the following day in pure water. Infuse twelve pounds of madder for half an hour with a pound of chloride of tin, in lukewarm water; filter through canvas, remove the dye from the canvas, and put it in the bath, which is to be heated to 100 deg. Fahr.; add two ounces of aluminous mordant, put the wool in and raise to boiling heat. Remove the wool, wash, and soak for a quarter of an hour in a solution of white soap in water.

Yellow.—Dye with that used for calico, etc.

Dyeing—for Buckskin.

Buff.—Five parts of whiting to two parts of ochre (yellow); mix them with water to a paste, make into cakes and dry. When a dressed skin is dry rub one of the balls over the surface, rubbing the powder in. Take a piece of sandpaper and raise a nap on the leather by going over with it.

Black.—Take clear logwood; after it is dry use copperas water to blacken it. Be careful to not use too much copperas.

Dark Brown.—Five pounds of oak bark; 4 pounds of fustic; 14 ounces of logwood. Use alum water (strong) to make it strike in.

Drab.—Mix blue clay with soft soap; add blue vitriol to shade the color. It can be made any shade you wish.

Dyeing for Morocco and Sheep Leather.

The following colors may be imparted to leather, according to the various uses for which it is intended.

Blue.—Blue is given by steeping the skin a day in urine and indigo, then boiling it with alum; or it may be given by tempering the indigo with red wine and washing the skins therewith.

Another.—Boil elderberries or dwarf elder, then smear and wash the skins therewith and wring them out; then boil the elderberries as before in a solution of alum water, and wet the skins in the same manner once or twice, dry them, and they will be very blue.

Red.—Red is given by washing the skins and laying them 2 hours in gall, then wringing them out, dipping them in a liquor made with ligustrum, alum, and verdigris in water, and lastly in a dye made of Brazil-wood boiled with lye.

Purple.—Purple is given by wetting

the skins with a solution of rock-alum in warm water, and when dry, again rubbing them with the hand with a decoction of logwood in cold water.

Green.—Green is given by smearing the skin with sap green and alum water boiled.

Dark Green.—Dark green is given with steel filings and sal ammoniac, steeped in urine till soft, then smeared over the skin, which is to be dried in the shade.

Yellow.—Yellow is given by smearing the skin over with aloes and linseed oil, dissolved and strained, or by infusing it in weld.

Light Orange.—Orange color is given by smearing it with fustic berries boiled in alum water, or, for a deep orange, with turmeric.

Sky-Color.—Sky-color is given with indigo steeped in boiling water, and the next morning warmed and smeared over the skin.

E

Ears—Care of the.

Do you want to be able to hear well, even if you live to be 90 or 100? asks Dr. Henry B. Malone. Then keep the outside ear clean and let the inside alone. Nature has furnished a cleaning apparatus for the ear passages. Don't tamper with them. The entrance to the auditory canal is guarded by fine hairs that keep out dirt and insects. In the lining membrane of the canal is an oily yellow wax that is bitter to the taste. On account of this bitter wax no insect will of its own accord enter the canal. It is only by accident that an insect ever gets in the ear. The quickest way to get rid of it is to drop in a little sweet oil. This will either drown it or frighten it out. The wax

in the ear is absolutely necessary to keep it in a healthy condition. Never try to get it out. Always remember that nature will not let the inner ear become dirty. Never insert the end of a wet towel or cloth into the ear to try to wash out the wax. Washing the auditory canal with soap and water is also injurious, as in this way the wax is moistened and more easily collects dust and dirt. It is dangerous—and if persisted in surely produces deafness—to scratch the ear canal with pins, tooth-picks or hairpins. Never put cold water or any other cold liquid in the ear. When going in swimming insert cotton, or, what is still better, a little wool, in the ear. When out in a cold wind or rainstorm it is best to protect the ears.

Avoid blowing the nose violently in case of cold. This sometimes causes the inflammation to spread into the Eustachian tube and causes deafness. Children's ears should never be boxed. A blow on the ear often drives the air with such force against the drumhead that it is ruptured by the shock. Measles and scarlet fever occasionally leave the auditory canal in a diseased condition. The wax then accumulates in dry lumps. It can be removed by dropping a little warm sweet oil into the ear and allowing it to remain until the wax becomes softened. Then wash out the ear with a fountain syringe, using about a pint of warm water.

Early Rising

Has been extolled on all hands as conducive to health, yet we must always remember that the body requires a certain amount of rest in bed, so that early rising, without being accompanied by going to bed at a reasonable hour, is simply out of the question. "Early to bed and early to rise" is certainly a much better rule than late to bed and late to rise, and it will always be found that a good start in the morning aids one in many ways. There can be no doubt that sleep in the early hours of the night is much more refreshing than that which is obtained in the morning. Morning, too, is the best time of the day for taking exercise, and the healthiest man is he who takes advantage of this, the general tone of the body being invigorated and the digestive powers likewise improved.

The difference between rising every morning at 6 o'clock or 8, in the course of forty years, amounts to 29,200 hours, or three years, one hundred and twenty-one days and sixteen hours, which are equal to eight hours a day for exactly ten years. So that rising at six will be the same as if ten years of life (a weighty consideration) were added, wherein we may command

eight hours every day for the cultivation of our minds and the despatch of business.

Earthenware—To Temper.

When new, and before used for baking, put in enough cold water to cover, and heat it gradually until the water boils. It is then less likely to crack.

Easter Sunday

Comes next after the full moon that follows, or falls on, the 21st of March (the vernal equinox). When that date is Sunday and full moon also, the next is Easter Sunday. Thus, in 1894, the full moon was on the very day of the equinox, Wednesday, March 21st, and the Sunday following, March 25th, was Easter Sunday.

Ebony—To Imitate.

Ebony can be imitated by using a dye of logwood, galls, and sulphate or acetate of iron; but it will always look dull and unnatural unless rightly polished, when it will come out a most brilliant, shiny black. It is done in this way: Put the dyed or finished article in the lathe, turn at great speed, and while in revolution, firmly and evenly press the siliceous rind of bamboo, or a hard wood burnisher, against the article, and continue the operation till all the grain is reduced to a smooth, glossy surface. The bamboo is best, it is so unyielding and hard in texture. Smooth flat work, not adapted to a lathe, must be rubbed till a polish is obtained.

Eggs—Birds'.

In selecting eggs for a cabinet, always choose those which are newly laid; make a medium-sized hole at the sharp end with a pointed instrument, and one at the blunt end. Let this last hole be as small as possible. This done, apply your mouth to the blunt end, and blow the contents through the sharp end. If the yolk will not come freely, run a pin or wire up into the egg,

and stir the yolk well about; now get a cupful of water, and immersing the sharp end of the shell into it, apply your mouth to the blunt end and suck up some of the water into the empty shell; then put your finger and thumb upon the two holes, shake the water well within, and after this, blow it out. The water will clear the egg of any remains of yolk or of white which may stay in after blowing. If the shell is dirty, wash it well in soap and water, and use a nail-brush to get the dirt off. Nothing now remains to be done but to prevent the thin white membrane (which is still inside) from rotting. Take a wineglass and fill it with a solution of corrosive sublimate in alcohol, then immerse the sharp end of the egg-shell in it, keeping the finger and thumb which hold the egg just clear of the solution. Apply the mouth to the little hole at the blunt end, and suck up some of the solution into the shell, taking care that none enters the mouth. Shake the shell in the same manner as when the water was in it, and then blow the solution back into the glass. The egg-shell will now be beyond the reach of rotting; the membrane will forever retain its pristine whiteness, and no insect will ever venture to prey upon it. If you wish your egg to appear extremely brilliant, give it a coat of mastie varnish, put on very sparingly with a camel-hair pencil: green or blue eggs must be done with gum arabic, as the mastie varnish is apt to injure the color.

Eggs—To Dry.

The eggs are beaten to uniform consistency, and spread out in thin cakes on batter plates. This dries them into a paste, which is to be packed in close cans and sealed. When required for use, the paste can be dissolved in water, and beaten to a foam like fresh eggs. It is said that eggs can be pre-

served for years in this way, and retain their flavor.

Egg-eating Hens.

To cure this habit, break an egg and dust the contents nicely with fine Cayenne pepper, afterwards turning the egg round so as to get the pepper below the yolk, if possible, and leave the egg in the offender's nest; or, if she is caught in the act of eating an egg, drive her away quietly, and place pepper in the remainder of the egg, endeavoring, as stated before, to get the pepper underneath. She will very soon be seen running furiously about with distended beak. If one dose is not sufficient, administer another a little stronger. If fowls are well supplied with lime and gravel rubbish and animal food (fresh meat) in some form, hens will not eat their eggs. Artificial or china eggs should be used as nest eggs.

Eggs—Dried.

Take fresh laid eggs, any quantity, break them into an evaporating basin, and expose them to a heat of 125 deg. Fahr. in a water-bath, until hard, then pack them in air-tight vessels. For use, take cold water, 3 parts; dried egg, 1 part. Beat them well together.

Eggs—Sex of.

It is affirmed with assurance that the eggs containing the germ of males have wrinkles on their smaller ends, while female eggs are smooth at their extremities.

Eggs—Laying Soft-shelled.

This results from a deficient supply of lime, and an excess of soft and animal food. Give with the feed more plaster, pounded oyster shells, gravel and rubbish, etc.

Eggs—To Color.

Eggs are colored variously, thus: A dark rosewood color by pouring half

a gallon of boiling water upon from one eighth to one quarter of a pound of logwood chips. This makes the dye; put the eggs therein and let them boil for one hour. You will have a hard-boiled egg, but the color will be beautiful. To vary the color or to write a name on the egg, drop melted beeswax on the shell of the egg in the pattern you want it; then put the egg into the dye and leave it as above. When you take it out, scrape off the wax and beneath it the shell will be all white; the rest of it will be dyed. For a faint yellow color onion skins will do, used like the logwood. To increase the color wrap some of the onion skins around the egg and leave it in the dye. The skins must be fastened of course. By onion skins we mean the dry, yellow outside skin of the onion. A good effect is also got by taking a piece of nicely figured calico, putting it neatly around the egg and then allowing it to remain either in the onion skin or logwood dye pot. The figure in the calico generally comes out and fixes itself in the egg-shell. Variations of color may be had by using any of the vegetable dyes.

Eggs—Pickling.

At the season of the year when the stock of eggs is plentiful, cause some four or six dozen to be boiled in a capacious saucepan until they become quite hard. Then, after removing the shells, lay them carefully in large-mouthed jars, and pour over them scalding vinegar, well seasoned with whole pepper, allspice, a few raccs of ginger, and a few cloves of garlic. When cold they are bunged down close, and in a month are fit for use. Where eggs are plentiful, the above pickle is by no means expensive, and as an acetic accompaniment to cold meat, it can not be rivaled.

Eggs—To Preserve.

For each pailful of water put in one

pint of fresh slaked lime, and one pint of common salt, mix well, fill your barrel about half full of this fluid, then with a dish, let your fresh eggs down into this, and they will settle down right side up with care every time, and we can assure any one who will try it, that they will keep any reasonable length of time without any further care than to keep them covered with the fluid. Eggs may be laid down in this way any time after June.

Another.—Eggs may be preserved by keeping them buried in salt, or dipping them during two or three minutes in boiling water. The white of the egg then forms a kind of membrane which envelops the interior, and defends it from the air.

Another (Seaman's Method).—The week before going to sea, on a four months' voyage, I gathered in sixty dozen eggs for cabin seastores, taking especial pains to prove every egg a good one; besides, I got them from my farmer friends, and know they were fresh. Then I fixed them for keeping, by taking five or six dozen at a time in a basket, and dipping them about five seconds in the cook's "copper" of boiling water. After scalding, I passed the eggs through a bath, made by dissolving about five pounds of the cheapest brown sugar in a gallon of water, and laid them out on the galley floor to dry. There I had my sixty dozen eggs sugar-coated. I packed them in charcoal dust instead of salt. The steward had strict orders to report every bad egg he should find. During the voyage he brought three, not absolutely spoiled, but a little old like. All the others, or what was left of them, were as fresh when we came in as they were when I packed them away.

Another.—A Parisian paper recommends the following method for the preservation of eggs: Dissolve four ounces of beeswax in eight ounces of

warm olive oil, in this put the tip of the finger and anoint the egg all round. The oil will immediately be absorbed, and the shell and pores filled up by the wax. If kept in a cool place the eggs, after two years, will be as good as if fresh laid.

Another.—Dip them into a solution of gun-cotton in ether (collodion), so as to exclude the air from the pores of the shell; the collodion may be applied with a brush.

Another.—A writer recommends the dissolving of gum shellac in alcohol, when the mixture may be applied with a common paint-brush. When dry, pack in bran, points downward. Eggs so preserved will keep a very long time. When about to be used, the varnish may be washed off.

Another.—Get a good, sweet wooden box, put about an inch of salt on the bottom; take sweet grease of any kind, lard or drippings, rub the eggs all over with it and put them, the little end down, in the salt; then spread a layer of salt and then add more eggs.

Another.—Pack the eggs in a cask with the smaller end downward; and fill up the cask with melted tallow. This method is practiced very extensively in Russia and in other parts of Europe, and is generally successful.

Another.—Keep them at the temperature of 40 degrees or less, in a refrigerator. Specimens had been exhibited, which were fourteen months old, and still perfectly fresh and sweet.

Another.—Apply with a brush a solution of gum arabic to the shells, or immerse the eggs therein; let them dry and afterwards pack them in dry charcoal dust. This prevents their being affected by any alterations of temperature.

Eggs (White of)—To Preserve.

There are several ways of preserving albumen; one is by drying it at a low

temperature (otherwise it coagulates) and then powdering it, when it is always ready for solution. The second is a preservative, like carbolic acid (phenylic alcohol), when there are no objections to its odor. Otherwise, 5 per cent. of sulphite of soda (not sulphate) will accomplish the same purpose, and give an odorless and almost tasteless preparation.

Elaine—To Obtain Pure.

Olive oil, 1 part; alcohol, 9 parts. Mix and heat to the boiling point, in a close vessel, then allow it to cool, and place it in a freezing mixture until the whole of the stearine is deposited, then decant the clear and distill off the alcohol in a water-bath, the remainder will be pure Elaine. This Elaine or pure oil will not freeze in frosty weather, and neither thickens nor corrodes when applied to metals. It is a perfect cure for "lame" chronometers, watches, etc.

Electro-coppering.

Make a strong solution of sulphate of copper (boiling water will dissolve the most) and strain it. Connect to the wire from the zinc pole of the battery, a clean plate of copper, and place it in the solution. Suspend from a rod across the top of the bath, by means of wire, the articles to be coppered, care being taken that they do not touch each other, and connect this rod with the other pole of the battery.

Electro-plating—Gold Solution for.

Dissolve five pennyweights gold-coin, five grains pure copper and four grains pure silver in three ounces nitromuriatic acid,—which is simply two parts muriatic acid and one part nitric acid. The silver will not be taken into solution as are the other two metals, but will gather at the bottom of the vessel. Add one ounce pulverized sulphate of iron, half an ounce pulverized borax, twenty-five grains pure

table salt, and one quart hot rain-water. Upon this the gold and copper will be thrown to the bottom of the vessel with the silver. Let stand till fully settled, then pour off the liquid carefully, and refill with boiling rain-water as before. Continue to repeat this operation until the precipitate is thoroughly washed; or, in other words, fill up, let settle, and pour off so long as the accumulation at the bottom of the vessel is acid to the taste.

You now have about an eighteen-carat chloride of gold. Add to it an ounce and an eighth cyanuret potassa, and one quart rain-water—the latter heated to the boiling point. Shake up well, then let stand about twenty-four hours and it will be ready for use.

Some use platina as an alloy instead of silver, under the impression that plating done with it is harder.

Solution for a darker colored plate to imitate Guinea gold may be made by adding to the above one ounce of dragon's-blood and five grains iodide of iron.

If you desire an alloyed plate, proceed as first directed, without the silver or copper, and with an ounce and a half of sulphuret potassa in place of the iron, borax and salt.

Electro-plating—Silver Solution for.

Put together into a glass vessel, one ounce good silver, made thin and cut into strips; two ounces best nitric acid and half an ounce pure rain-water. If solution does not begin at once, add a little more water—continue to add a very little at a time till it does. In the event it starts off well, but stops before the silver is fully dissolved, you may generally start it up again all right by adding a little more water.

When solution is entirely effected, add one quart of warm rain-water and a large tablespoonful of table salt. Shake well and let settle, then proceed

to pour off and wash through other waters as in the case of the gold preparation. When no longer acid to the taste, put in an ounce and an eighth cyanuret potassa and a quart pure rain-water; after standing about twenty-four hours it will be ready for use.

Electro-plated Goods—To Remove Tarnish from.

Make a solution of half a pound cyanuret potassa in two gallons rain-water. Immerse the article till the tarnish has disappeared, then rinse off carefully in three or four waters, and dry in sawdust.

Electro-plating Glass Mirrors.

The platinized mirrors are not electro-plated; the platinum solution is simply put on the glass and the metal precipitated by heat and purely chemical action. To make the solution, take chloride of platinum,—and if you cannot obtain it from some chemist, you may easily make it by dissolving half an ounce of platinum in aqua regia and evaporating to dryness in order to remove all excess of acid, applying only a moderate heat in order not to reduce the platinum back to its metallie state. This chloride of platinum is then rubbed up on a glass plate with oil of lavender, adding the oil carefully little by little, so as not to cause the mixture to become too hot, which would result in a failure. After adding nearly two ounces of oil the mixture is left for two weeks to settle, when the liquid is poured off from the sediment and filtered. After another week's rest, one drachm of litharge and one drachm of borate of lead are rubbed up with one scruple of lavender oil, and this mixture added to the platinum mixture only as it is to be used. The mixture is then put on the glass and gradually dried, when the glass is introduced into a properly constructed

furnace, similar to a muffle furnace; at the red heat the oil is decomposed, its carbon and hydrogen reduces the platinum to the metallic state, and mingling with the easily fusible lead and borax glass formed on the surface, melts into the surface of the glass plate and forms the platinum mirrors, so much admired for their property of reflecting light from both sides, while at the same time they are transparent enough to make strongly illuminated objects visible through them. As it takes for every square foot scarcely one grain of platinum, it is seen that the coating is very thin, showing the great divisibility of this metal; and as one grain of platinum costs less than two cents, the process is not expensive, the labor and other materials used amounting to more than the expense of the platinum.

Electro-plating Silver on Iron.

The common practice among electro-platers is to immerse the steel or iron, first in a bath of sulphate of copper, and connect it for a short time with a not too strong battery, so as to obtain a thin, even film of metallic copper. On this the silver may then easily be deposited.

Electro-plating German Silver on Other Metals.

Take the chlorides of the three metals which constitute German silver and mix them in proportion as they are in that alloy; that is, for the basest: 1 nickel, 4 zinc, and 5 copper; for the best or imitation silver of Frick: 3 nickel, 2 zinc, and 8 copper; and the Chinese white copper: 6 nickel, 5 zinc, and 8 copper; all other German silver alloys are between these, so it will be seen that a wide latitude exists. These chlorides are made by dissolving the respective metals in hydrochloric acid, and driving off the excess by a moderate heat. When dissolved in water, a concentrated solution of cyanide of potassium

is added, and in this way the cyanides of the metals are formed which precipitate, and are re-dissolved again by adding more of the cyanide solution. We thus obtain a solution of the cyanides of the metals in cyanide of potassium. The solution is then moderately heated in a cast iron vessel, and the objects to be plated suspended in the same after having been carefully cleaned and connected with the zinc pole of the battery; on the other pole of the battery, of course, a plate of German silver is suspended, of a similar alloy in order to keep the solution uniform, as from this plate the same amount is dissolved as is deposited on the objects plated.

Electrotype Plates—To Coat with Iron.

The following has been successfully employed in coating electrotype deposits with a coating of pure iron, thereby rendering them little inferior to steel-plate engravings as regards durability:

Dissolve 1 pound of sal ammoniac in 1 gal. of rain-water, then add 2 pounds of neutral acetate of iron; boil the solution in an iron-kettle for 2 hours replacing the water lost by evaporation; when cold, filter the solution, and keep it in close-covered vats (when not in use) to prevent oxidation.

The iron plate used in the decomposition-cell must be of the same surface as the plate to be coated with iron; a Smec's battery, of at least 3 cells, charged with 1 part sulphuric acid, and 60 parts water, being used for the decomposition.

To insure success the following rules must be observed:

1. The plate must be thoroughly freed from any greasy matter by immersing in a solution of caustic soda, then rinsed in clean, cold rain-water, after which dip it in dilute acetic acid, and immediately transfer it to the solution of iron;

this will insure perfect adhesion between the metals.

2. The solution must be filtered previous to use to remove the oxide of iron formed by exposure to the atmosphere. After the plates have been coated with iron they must be well rinsed in clear warm rain-water, then in a weak alkaline solution, well dried with a piece of clean, soft cotton, and slightly oiled to prevent oxidation.

The coating of iron is very hard and brittle, resembling the white iron used by manufacturers of malleable iron. Should any of the surface be damaged the whole coating of iron may be removed by immersion in dilute sulphuric acid, and re-coated again by the above process.

Electrotyping Plaster Casts.

To prepare a plaster cast for electrotyping, first dry the plaster cast in the oven thoroughly, then get equal parts of beeswax and common resin, melt them together, and boil the cast until it will not absorb any more; when cold, get some good black lead and cover the cast entirely, not a thick but a bright surface, then you can electroplate in your battery as usual.

Embalming—French Method.

The following is M. Gannal's mixture for injecting the carotid artery, whereby all the purposes of embalming are attained:—Take dry sulphate of alumine, 1 kilogramme (equal 2 lbs. 3 oz. 5 drs. avoirdupois) dissolved in half a litre (a little less than a pint) of warm water, and marking 32° of the aerometer. Three or four litres of this mixture will be sufficient to inject all the vessels of the human body, and will preserve it in the summer; in the winter, from one to two litres will be enough. But to keep away insects, there should be added to the above chloruret of copper, at the rate of 100 grammes to a kilogramme of the sul-

phate of alumine; or else 50 grammes of arsenious acid. This applies to all kinds of animals, birds, fishes, etc., as well as to the human subject. The above process has been introduced into the great anatomical schools in Paris; and in nearly all the recent interments of distinguished individuals, the old and and revolting mode of embalming has been superseded by this new and simple method.

Emery Wheels.

Take a solid wheel, made of pine, or any other soft wood, and of the size required for the purpose. Turn the wheel true, and then turn rounds or hollows in its face, to suit the tools you wish to grind, gouge, round, etc. Then prepare some best glue, and using it hot and thin, put it on the face of the wheel with a brush. The first coat of glue should be a light one, and when it is dry a second one should be applied, and, as quickly as possible, as much emery should be sifted upon the wet surface as the glue will hold. When this is dry another coat of glue and emery should be applied in the same way. This will make a wheel that will last for months, and grind faster than anything else.

Employer Must Contract to Employ,

as well as an employe to serve, otherwise the employer may put an end to the contract at his own pleasure. In such a case an employe may be dismissed without notice. But where an employe agrees to serve an employer in a certain capacity for a definite time, it must not be implied, from this circumstance alone, that the employer agrees to retain the employe in his employ until the expiration of that time.

Engraving in Alto-Relievo.

In the common operation of engraving, the desired effect is produced by making incisions upon the copperplate

with a steel instrument of an angular shape, which incisions are filled with printing-ink, and transferred to the paper by means of a roller, which is passed over its surface. There is another mode of producing these lines or incisions, by means of diluted nitrous acid, in which the impression is taken in the same way. Another method of engraving is done upon a principle exactly the reverse, for instead of the subject being cut into the copper, it is the interstice between the lines which is removed by diluted aquafortis, and the lines are left as the surface, from which the impression is taken by means of a common type-printing press, instead of a copperplate press.

This is effected by drawing with common turpentine varnish, covered with lampblack, whatever is required upon the plate; and when the varnish is thoroughly dry, the acid is poured upon it, and the interstice of course removed by its action upon the uncovered part of the copper. If the subject is very full of dark shadows, this operation will be performed with little risk of accident, and with the removal of very little of the interstice between the lines; but if the distance between the lines is great, the risk and difficulty is very much increased, and it will be requisite to cut away the parts which surround the lines with a graver, in order to prevent the dabber with the printing-ink from reaching the bottom, and thus producing a blurred impression. It is obvious, therefore, that the more the plate is covered with work, the less risk there will be in the preparation of it with the acid, after the subject is drawn, and the less trouble will there be in removing the interstice, if any, from those places where there is little shading.

Engravings—To Clean.

It has been found that ozone bleach-es paper without injuring the fiber in

the least. It can be used for removing mildew and other stains from engravings that have been injured by hanging on the walls of damp rooms. The engravings should be carefully moistened and suspended in a large vessel partially filled with ozone. The ozone may be generated by putting pieces of clean phosphorus in the bottom of the vessel, partially filled with water, or by passing electric sparks through the air in the vessel.

Enigmas

are compositions of a different character, based upon ideas, rather than upon words, and frequently constructed so as to mislead and to surprise when the solution is made known. Enigmas may be founded upon simple catches, like Conundrums, in which form they are usually called Riddles, such as—

My first is a pronoun; my next is used at weddings; my whole is a fish—(Herring.)

Ensilage,

in agriculture, is a way of storing green fodder, vegetables, etc., in receptacles called "silos," which are usually pits, lined with wood, brick, concrete or stone. The fodder is cut, mixed, placed in the silo, and kept compressed by heavy weights. The modern system dates from about 1875, but the practice was known to the Romans, and has been common in Mexico for centuries.

Ether—To Wash.

This operation is for the removal of alcohol, and may be done by agitating with twice the bulk of water, which will unite with the alcohol, forming a heavier stratum, from which the ether may be poured off. The ether will absorb ten per cent. of the water, which can be removed by agitation with freshly burnt lime and subsequent distillation.

Another.—Turn the ether and water

into a glass funnel, while you hold a finger to the end to prevent anything from running out. The ether rises to the top, the water and residue fall to the bottom. Take away your finger from the funnel and let the water out; then save your ether. It is almost as simple as saving washed oil.

Etiquette—Hints on.

Whatever objections may be raised to the teachings of works on etiquette, there can be no sound argument against a series of simple and brief hints, which shall operate as precautions against mistakes in personal conduct.

Letters of Introduction. — When giving a letter to introduce a friend leave it unsealed, as he may wish to see what you have said before he makes use of it.

In availing yourself of a letter or this kind intended as a friendly introduction, send it in an envelope with your card and address, but do not call until the friends to whom you are introduced have called upon you.

If the letter is a business introduction deliver it without delay.

On receiving a letter of introduction be sure to acknowledge it at once, and call on the person introduced as soon as possible.

Calls and Visits. — It is now usual for ladies to have an "at-home" day once or twice a month, when they make a point of being at liberty to receive any friends who wish to call on them. It is customary to have the intimation of your at-home day printed on your visiting card, such as "1st and 3rd Thursday"; "2nd Monday."

A formal visit should never be made before noon. If a second visitor arrives it is not advisable to remain long, unless you are very intimate both with the host and the visitor; or the host expresses a wish for you to stay.

A gentleman should hold his hat in his hand, unless requested to put it

down, but should leave his umbrella in the hall.

Visits after balls or parties should be made within a month.

Visits of condolence should be paid within a week or fortnight after the event, and require a grave style of dress.

When you introduce a person, pronounce the name distinctly, and say whatever you can to make the introduction agreeable. Such as "an old and valued friend," "a schoolfellow of mine," "an old acquaintance of our family."

A gentleman should be introduced to the lady, not the lady to the gentleman.

Be hearty in your reception of guests, and where you see much diffidence, assist the stranger to throw it off.

Request the servant, during the visits of guests, to attend to the door the moment the bell rings.

When your visitor retires, you may accompany your guest as far towards the door as the circumstances of your friendship seem to demand.

If visiting for a few days at a friend's house, give as little trouble as possible and endeavor to conform to the habits of the family. Ascertain the usual times for meals, and make a point of being punctual.

Balls and Evening Parties.—An invitation to a ball should be given at least a fortnight beforehand.

Upon entering the reception-room first address the lady of the house, and after her the nearest acquaintances you may recognize in the room.

If you introduce a friend, make him acquainted with the names of the chief persons present. But first present him to the lady of the house, and to the host.

Appear in full dress.

Always wear gloves, and put them on previous to entering the room.

Avoid an excess of jewelry, and do not wear rings on the outside of your gloves.

Gentlemen should not select the same partner frequently, but distribute their attentions as much as possible.

If there are more dancers than the room will accommodate, do not join in every dance.

Do not remain too close, and in leaving a large party it is unnecessary to bid farewell, and improper to do so before the guests.

The host and hostess should look after all their guests, and not limit their attentions. They should, in fact, attend chiefly to those who are the least known in the room.

The hostess may introduce any gentleman to a lady without first asking the lady's consent, after ascertaining that the lady is willing to dance.

After dancing, conduct your partner to a seat, or resign her as soon as her next partner advances.

An introduction to a lady at a ball does not entitle the gentleman to bow to her on a future occasion, unless she first recognizes him.

Etiquette—100 Rules of.

It is not necessary for a lady to invite her gentleman escort to enter the house when the hour is late; neither is she obliged to ask him to call and see her. Politely thank him, and you will have acted properly.

It is not necessary for a gentleman to remove his hat in a public elevator when ladies are present. In a hotel elevator the hat should be removed.

If you wish to cut an undesirable acquaintance, a cold, dignified bow will often prove more effectual than to ignore entirely.

Ladies are not required to recognize young men to whom they have been introduced at euchre parties, receptions or other gatherings.

The old-fashioned custom of ladies kissing every time they meet is no longer practiced, except between dear friends after long absence.

Never interrupt a person who is talking to another. Nothing is more rude.

Never comment on a person's affliction or lameness.

Never indulge in religious or political discussions in the presence of ladies.

Never whisper in company; it is the height of ill manners.

It is a mark of vulgarity to converse with another in a language not known to the company.

It is a high accomplishment to be a good listener.

In speaking to a lady, a gentleman should always assume a softer tone.

One of the most ungentlemanly and meanest things a man can do is to smoke a cigar or pipe when the fumes are blown right into a lady's face. It matters not if the railway or other rules give him the right, it only makes more conspicuous his meanness.

A gentleman should never retain his seat while a lady is standing, unless she refuses to accept it.

Never wear your napkin on your breast. Spread it across your knees.

At a table the lady should take the seat at the right-hand side of the gentleman.

Never fold your napkin when dining away from home; place it beside your plate.

Never attempt to correct a person who is telling a story; it is both rude and embarrassing.

Let your conversation be directed to all the guests; and remember that there may be others present who would like to say something.

Always use the fingers when taking cake or bread.

Never converse while others are playing an instrument or singing.

Never wait to be coaxed to sing or play; if you can do either, your prompt compliance will make your efforts doubly appreciated.

Do not call out anyone's address in public or before strangers.

The formal hour for calling is between three and four o'clock.

The informal or friendly call may be made between five and six o'clock.

When you see that your preferences or dislikes annoy another, it is good manners to concede a little.

Always treat your servants and subordinates with politeness; it will insure their respect.

Never use your toothpick at table or when talking to a person.

Never assume a haughty manner; be courteous always.

Never remark on the apparel or jewelry of another.

Keep your hands and finger nails clean.

Never praise or belittle yourself; leave both to those who will be sure to save you the trouble.

Every true lady is easy and natural in her manner; to high and humble she is the same; every person feels comfortable in her presence.

Upon the death of an acquaintance, personally leave a card; this expresses your sympathy and requires no acknowledgment.

Never speak ill of absent persons.

Do not reach for or receive anything over another's plate at table.

Never tilt your plate, or ask the second time for fish or soup.

Be agreeable and sociable in company.

Never become irritated or angry in conversation.

Do not eat fast or fill your mouth very full.

Do not talk with food in your mouth.

A gentleman at table will see that his lady is served before he commences to eat.

It is rude to smack your lips when eating soup, or to make unnecessary noise while eating.

Never spread large pieces of bread, nor bite nor cut it—always break it.

Try to cultivate the use of the left hand; this will save you from changing the fork from one hand to the other.

Coffee or tea should never be poured into your saucer.

Do not blow your soup—wait until it cools sufficiently.

Use the butter-knife and sugar-spoon; it is disgusting to use your own knife or spoon.

Use delicate perfumes or none.

A lady may either wear her gloves or remove them at supper.

Invitations to balls or parties should be given in the lady's name.

An invitation should be sent at least three weeks before a ball or party.

It is not gentlemanly to smoke in the presence of ladies. It is very easy to smoke elsewhere.

Never take much wine. If you disapprove of drinking, simply decline, but do not express your reason.

Avoid using slang words or expressions.

It is now the custom to take the last piece of bread or cake on a plate; otherwise the hostess will think you fear there is no more.

Peas and most vegetables, also cheese, should be eaten with a fork.

"P. P. C." means "Take leave." "R. S. V. P.," "Answer, if you please."

Fruit and olives should be taken with the fingers.

Answer your letters promptly; this is one of the most important rules of etiquette.

A man should not wear much jewelry; it makes him appear too effeminate.

Always be polite to ladies; they never fail to appreciate courtesy.

It is impolite to ask a lady her age.

Always dress as well as your means will afford.

It is better to have well fitting clothes than costly material.

Loud talking in public conveyances or places is a sign of low breeding.

Never use profane language. It is wholly unnecessary and the sign of a depraved character.

As a woman's hair is her glory, it is well to always have it becomingly arranged.

The gentleman precedes the lady on going up stairs; the lady descends first.

It is not graceful to tilt back your chair or put your feet on the rounds.

Never hold an argument with an ill-bred person.

A clean collar, clean nails, and polished shoes are signs of a gentleman.

In conveying food to your mouth use your fork or spoon. Never use your knife.

When walking with a lady the gentleman takes the side next the street.

It is no breach of good manners for a lady not to recognize a gentleman to whom she has been introduced at a summer resort or other public place. It is her right.

Try to cultivate a cheerful disposition; it is productive of good health and long life.

A lady recognizes the gentleman first, when meeting on the street or in public.

Always be provided with a handkerchief.

A gentleman should not ask a lady her reason for declining to accept an invitation.

The rule for wearing mourning is: Widow, two years; for brother or sister, six months; parents for children, any length of time.

Upon being handed a glass of water, "Thank you" is the proper acknowledgment.

Wedding invitations should be sent not less than two weeks before the wedding day.

Each person invited to the wedding should send the bride a present.

Never attempt to discuss a subject

on which you are not well informed.

When a gentleman meets a lady on the street, he should walk with her; it is improper to keep her standing while you talk.

Always take care of your teeth; there is no excuse for unclean teeth.

Many persons do not wear mourning now, because everybody is supposed to grieve at the loss of a dear one.

Never neglect an appointment if possible to keep it, and always make it a point to be punctual.

A gentleman always precedes a lady when passing through a crowd.

Spitting on the floor of a room or conveyance is disgusting.

Ladies admire gallantry and respectful attention, but too much familiarity often incurs their lasting aversion.

During a short or formal visit the gloves should not be removed.

Never drink from your saucer; use your cup only.

Use the best stationery in writing.

Remove your knife and fork from the plate before passing it for more food.

Never introduce unpleasant subjects at the table, but let the conversation be of a cheerful character, and, while doing your own share, give others a chance to say something too.

Careless remarks will kill the warmest friendship.

Conversation about your own doings shows ill-breeding.

The book that has been loaned to you is not yours to loan.

At all times try to live up to the Golden Rule.

Evenings—Social.

Much enjoyment, and in some cases great benefit, might be obtained, at very little trouble or expense, if a few congenial friends arranged to meet and spend an evening together once a week for reading, discussion, music, games,

or any other amusement which may be agreed on.

We suggest a few simple rules that may be useful to any one wishing to try the experiment and start a friendly social circle and thus bring about more constant, easy intercourse amongst friends, the writer feeling convinced that society is equally beneficial and requisite—in fact, that mankind in seclusion, like the sword in the scabbard, often loses polish, and gradually rusts.

Rule I. That meetings be held weekly in rotation at each member's house.

Rule II. That such meetings commence at eight and end before twelve.

Rule III. That only light refreshments shall be provided, such as sandwiches, cakes, tea and coffee, etc.

Rule IV. That members make a point of attending each meeting unless unavoidably prevented.

Extracts—To Make..

Take of the plant, root or leaves you wish to make the extract from, any quantity; add sufficient water, and boil gradually; then pour off the water and add a second quantity; repeat the process until all the virtue is extracted, then mix the several decoctions, and evaporate at as low a temperature as possible, to the consistence of an extract. Extracts are better made in a water bath, and in close vessels, and for some very delicate articles, the evaporation may be carried on at a very low temperature, in a vacuum, by surrounding the vessel with another

containing sulphuric acid. Manufacturing druggists usually add to every 7 lbs. of extract 4 ounces of gum arabic, 1 ounce of alcohol, and 1 ounce of olive oil. This mixture gives the extract a gloss and keeps it soft.

Eyelashes—To Lengthen.

The mode adopted by the beauties of the East to increase the length and strength of their eyelashes is simply to clip the split ends with a pair of scissors about once a month. Mothers perform the operation on their children, both male and female, when they are mere infants, watching the opportunity whilst they sleep; the practice never fails to produce the desired effect.

Eyelashes—To Blacken.

The simplest preparations for this purpose are the juice of elder berries, burnt cork, and cloves burnt at the candle. Another means is to take the black of frankincense, rosin, and mastic. This black will not come off with perspiration.

A stick of India ink is the best of all.

"Eyes"—Game.

The curtains having been drawn close, the players except one go behind them. Those behind the curtains choose one of their number who looks between the curtains, showing only his eyes. The player who is left in the room has to guess who it is. If he is wrong he has to pay a forfeit. If right, he may go behind the curtain, and the one detected has to guess.

F

Farm Life—How to Make Attractive.

By less hard work. Farmers often undertake more than they can do well, and consequently work too early and too late.

By more system. Farmers should have a time to begin and stop labor. They should put more mind and machinery into their work; they should theorize as well as practice, and let both go together. Farming is healthful, moral and respectable; and, in the long run, may be made profitable. The farmers should keep good stock, and out of debt.

By taking care of health. Farmers have a healthful variety of exercise, but too often neglect cleanliness, eat irregularly and hurriedly, sleep in ill-ventilated apartments, and expose themselves needlessly to cold.

By adorning the home. Books, papers, pictures, music, and reading, should be brought to bear upon the indoor family entertainments; and neatness and comfort, order, shrubbery, flowers and fruits should harmonize all without. There would be fewer desertions of old homesteads if pains were taken to make them agreeable. Ease, order, health and beauty are compatible with farm life, and were ordained to go with it.

Never purchase land on credit, unless it be in a new country where it is certain to enhance in value rapidly.

Keep no more live stock of any kind than you can keep in good condition.

Never allow your stock to suffer from cold, by housing them in open, rickety buildings, and remember that warm, comfortable stables are a saving of one quarter of the feed that otherwise would be required.

If your farm is so large that you can-

not cultivate all of it to advantage, nor keep good fences on it, sell a part, and put the money out to interest. You may depend that by so doing you will save a great deal of care and trouble, and make money faster than by skimming over a large surface to get poor crops, and those half destroyed by unruly cattle breaking over your dilapidated fences.

Look well to your orchard, and remember that it costs no more to produce apples that sell for fifty cents a bushel than it does those that sell for twelve and a half cents.

Keep none but the best implements that can be produced, and when you possess them take care of them. It is shocking to a good farmer to see his neighbors leaving their plows and harrows in the field week after week, to soak in the rains and crack in the sun.

Never suffer yourself to be unprovided with suitable work for yourself and hands on a rainy day. A commodious workshop is necessary on such days, and a plenty of good tools. In such cases a good farmer will never lack for work. Much money may be thus saved that otherwise would go to the village.

Never borrow tools, unless it be in some unforeseen contingency. Every farmer should own every kind of implement necessary on his farm.

Never put off till to-morrow what may as well be done to-day. Thousands of tons of hay have been ruined by not heeding this rule.

Do all your work well. What is worth doing at all, is worth doing well.

Don't try to make merchants, lawyers, physicians, or clergymen of your sons, because the farmer's vocation is not without honor. Gen. Washington

was not ashamed of being a farmer, and you are no better than he was.

The soil must, like the horse or the ox, be fed, in order to give forth abundantly, and it must have rest. A judicious rotation of crops is the grand secret of prosperous farming.

The manure heap is an important consideration with the farmer. It should be increased by all substances that are easily procured, of a decaying nature. Remember that ammonia is the essence—the life—of all manures, and that plaster absorbs it, and retains it in the heap, while lime sets it free and causes it to escape. Carting manure to the field, and leaving it in heaps for months or weeks before it is spread and plowed under, is but one step short of insanity. It should be carted out no faster than it can be spread and plowed under.

Never leave your hired hands to work alone. Be present with them, even if you do nothing but look on. A pair of eyes will sometimes do wonders with workmen.

The farmer who refuses to lay before his children several good periodicals of the day, including one agricultural paper, is allowing his wealth and the usefulness of his family to run away at the bung, while he is saving at the spigot.

Feathers—To Cleanse of Their Animal Oil.

Take for every gallon of clean water one pound of quicklime, mix them well together, and when the undissolved lime is precipitated in fine powder, pour off the clean lime water for use. Put the feathers to be cleaned in another tub and add to them a quantity of the clean lime water, sufficient to cover them about three inches when well immersed and stirred about therein. The feathers, when thoroughly moistened, will sink, and should remain in the lime water three or four days; after which the foul liquor should be separated from

them, by laying them in a sieve. The feathers should be afterwards well washed in clean water, and dried upon nets, the meshes of which may be about the fineness of cabbage nets. The feathers must be from time to time shaken on the nets, and, as they get dry, they will fall through the meshes, and must be collected for use. The admission of air will be serviceable in drying. The process will be completed in three weeks. When thus prepared, the feathers need only be beaten to get rid of the dust.

Feathers—To Clean White Ostrich.

Four ounces of white soap, cut small, dissolved in four pints of water, rather hot, in a large basin; make the solution into a lather, by beating. Introduce the feathers, and rub well with the hands for five or six minutes. After this soaping, wash in clean water, as hot as the hand can bear. Shake until dry.

Feathers—To Clean Grebe.

First remove the lining, then wash with warm water and soap, as described for ostrich feathers. Do not shake the feathers until perfectly dry, and before re-making the skin mend any tears, etc., in it.

Feathers—To Clean.

Feathers are commonly cleaned by washing them in a weak solution of carbonate of soda or in lime water, after which they are rinsed in clean water, and then dried in the sun or in a stove. They will now be improved by a thorough beating. The best way to clean feathers, is to clean them out of the house, by taking them up on the roof of the house, barn, or shed, selecting a windy day, carefully ripping the tick the whole length of the seam, and suddenly opening it widely, so that the wind will clean them out in every direction. Don't sleep on feathers; they

are an utter abomination and are the cause of a vast amount of weakness.

Feet—Remedy for Blistered.

Rub the feet, on going to bed, with spirits mixed with tallow, dropped from a lighted candle into the palm of the hand.

Fence Posts—Preservation of.

Any sort of timber, when employed for fence posts, will be more than twice as durable if allowed to become thoroughly seasoned before being set in the ground. The durability of seasoned posts may be promoted, so as to make them last for an age, by the application of a heavy coat of coal-tar to the portion buried in the earth, and a few inches above the surface of the ground. Some farmers set the ground-end in hot tar, and let it boil fifteen minutes. When cool, cover with coal-tar, thickened with ground slate or ground brick. The boiling stiffens the albumen and causes the pores to absorb tar. The coating prevents the action of moisture. But such a treatment of green posts would do very little good and perhaps mischief. Others contend that the better way is to season the post well before setting it, and, when the post-hole is filled to within ten inches of the surface of the ground, to apply a heavy coat of tar and fill up with earth. As fence posts always decay first near the surface of the ground, it is only necessary to protect the post a few inches above the surface, and about a foot below it. The timber begins to decay, usually, on the surface of the posts. Therefore, if the surface can be protected by some antiseptic material, posts will last a lifetime. Of all the fence posts obtainable in this country those made of the wood of the Catalpa tree are the only ones requiring no artificial mode of preservation. They have been known to last in the ground over one hundred years.

Ferns—To Raise from Seed.

Procure some bricks or stones—bricks would be best, as they have an even surface, and are also porous, rendering them capable of holding water. These would be best if found covered with moss which has naturally grown on them. If not thus covered, it can be very easily done. The moss must not be thick; it can be clipped with a pair of scissors if thick, and well washed before using, to get rid of any seeds that may have fallen into it. These bricks should be placed in the pot or pan, so that their upper surface may come level with the soil used to steady them and fill up the pot. Sow the spores in the moss, and with a pepper dredge dust over the moss very lightly with burnt soil, and then with a very fine rose watering-can, wash down the soil and spores into the moss. Place the pot in a saucer of water, which must be kept full. Place a bell-glass over; those which have a hole in them near the top I prefer, as they prevent damping, affording an escape to the great evaporation which takes place; they can be left alone for a week without disturbance. There will be no necessity for surface watering until the seedlings appear; even then it is not advisable, if soaking the pot up to the rim can be quickly done. I should before have said that the bottom of the pot should be filled one-third of its depth with broken crocks. The pot should not see the sun until the seedlings are well up; even then shade is necessary. The soil used should be previously burnt, otherwise numberless seedlings will appear, which will choke those wanted, and be a cause of mischief in the operation of weeding. This plan I have proved, and can recommend it.

Files and Rasps.

Files and other instruments for the abrasion of various substances may be

made by folding up separate pieces of wet clay in muslin, cambrie, and Irish linen, forcing them by the pressure of the hand into the interstices of the threads, so that on divesting them of the covering, and having them well baked, a file is produced of a new species, said to be capable of operating on steel; and very useful in cutting glass, polishing and rasping wood, ivory, and all sorts of metals.

Files and Rasps—To Re-cut when Old.

Dissolve 4 oz. of saleratus in one quart of water, and boil the files in it for half an hour; then remove, wash, and dry them. Now have ready, in a glass or stoneware vessel, one quart of rain-water, into which you have slowly added 4 oz. of best sulphuric acid, and keep the proportions for any amount used. Immerse the files in this preparation for from six to twelve hours, according to fineness or coarseness of the file; then remove; wash them clean, dry quickly, and put a little sweet oil on them to cover the surface. If the files are coarse, they will need to remain in about twelve hours, but for fine files, six to eight hours is sufficient. This plan is applicable to blacksmiths', gunsmiths', tinnerns', copersmiths' and machinists' files. Copper and tin workers will only require a short time to take the articles out of their files, as the soft metals with which they become filled are soon dissolved. Blacksmiths' and saw-mill files require full time. Files may be re-cut three times by this process. The liquid may be used at different times if required. Keep away from children, as it is poisonous.

Files—To Clean.

Holding a file filled with work under a steam jet at 40 lbs. pressure is an effectual way of cleaning the same.

Fire Annihilator (Phillips').

This consists of a mixture of twenty parts charcoal, sixty nitre, and five gypsum, boiled together in water, and subsequently molded into a cylindrical brick. Down the axis of this there is a cavity for the reception of a phial containing a mixture of chlorate of potash and sugar, surrounded by a globule of sulphuric acid. By pushing down a rod the glass containing the acid is broken and the mixture inflamed. The composition is placed in an iron perforated vessel, and gives out a volume of gases which extinguish the fire.

Fires—Colored.

White Light.—8 parts saltpetre, 2 parts sulphur, 2 parts antimony.

Red Light.—20 parts nitrate of strontia, 5 parts chlorate of potash, $6\frac{1}{2}$ parts sulphur, 1 part charcoal.

Blue Light.—9 parts chlorate of potash, 3 parts sulphur, 3 parts carbonate of copper.

Yellow Light.—24 parts nitrate of soda, 8 parts antimony, 6 parts sulphur, 1 part charcoal.

Green Light.—26 parts nitrate of baryta, 18 parts chlorate of potash, 10 parts sulphur.

Violet Light.—4 parts nitrate of strontia, 9 parts chlorate of potash, 5 parts sulphur 1 part carbonate of copper, 1 part calomel.

Fire—To Extinguish in a Chimney.

So many serious fires have been caused by chimneys catching fire, and not being quickly extinguished, that the following method of doing this should be made generally known. Throw some salt or powdered brimstone on the fire in the grate, and then put a board or something in the front of the fireplace, to prevent the fumes descending into the room. The vapor of the brim-

stone, ascending the chimney, will then effectually extinguish the fire. Keep all the doors and windows tightly shut, and hold before the fireplace a wetted blanket, or some woolen article, to exclude the air.

Fires of Kerosene—To Extinguish.

In cases of kerosene fires, don't try to extinguish the flame with water; that will only spread the fire. Instead, use blankets, or woolen clothes, quilts, shawls, or whatever may be at hand that can be used to smother the flames.

Fire—To Bring Horses out of a Stable on.

Throw the saddle or harness, etc., over them, and they will come out immediately; or blindfold them and lead them out.

Fire Kindlers.

Take a quart of tar and three pounds of resin, melt them, bring to a cooling temperature, mix with as much sawdust, with a little charcoal added, as can be worked in; spread out while hot upon a board, when cold break up into lumps of the size of a large hickory nut, and you have, at a small expense, kindling material enough for a household for one year. They will easily ignite from a match and burn with a strong blaze, long enough to start any wood that is fit to burn.

Fire—Escaping from.

Be careful to acquaint yourself with the best means of exit from the hotel or house, both at the top and bottom.

On the first alarm, reflect before you act. If in bed at the time, wrap yourself in a blanket or bedside carpet. Open no more doors than are absolutely necessary, and shut every door after you.

There is always from eight to twelve inches of pure air close to the ground; if you cannot, therefore, walk upright

through the smoke, drop on your hands and knees, and thus progress. A silk handkerchief, a piece of flannel, or a worsted stocking, when wetted and drawn over the face permits breathing, and to a great extent excludes the smoke.

If you can neither make your way upward or downward, get into a front room; if there is a family, see that they are all collected here, and keep the door closed as much as possible, for remember that smoke always follows a draught, and fire always rushes after smoke.

On no account throw yourself, or allow others to throw themselves, from the window. If no assistance is at hand, and you are in extremity, tie the sheets together, having fastened one end to some heavy piece of furniture, and let down the women and children one by one, by tying the end of the line of sheets around the waist, and lowering them through the window. You can easily let yourself down after the helpless are saved.

Fire—Clothing on.

If a woman's clothes catch fire, let her instantly roll herself over and over on the ground. If a man be present, let him throw her down and do the rolling, and then wrap her up in a tablecloth, rug, coat, or the first woolen thing that is at hand.

Fires—Suggestions to Prevent.

Wax matches are particularly dangerous, and should be kept out of the way of rats and mice; be careful in making fires with shavings and other light kindling.

Do not deposit coal or wood ashes in a wooden vessel, and be sure burning cinders are extinguished before they are deposited.

Never put firewood upon the stove to dry.

Do not put ashes or a light under a staircase.

Fill kerosene lamps only in the daytime, and never near a fire or light.

Be cautious in extinguishing matches and never throw them on the floor.

Do not throw a cigar stump upon the floor, or into a box containing sawdust, without being certain that it is not on fire.

Do not blow out a candle, or put it away on a shelf or anywhere else, until sure that the snuff has gone entirely out.

A light ought not to be stuck up against a frame wall, or placed near any portion of the wood-work in a stable, manufactory, shop, or any other place.

Never enter a barn or stable at night with an uncovered light.

Hostlers should not be allowed to smoke about stables.

Never take an open light to examine a gas meter, or to search for an escape of gas.

Do not put gas or other lights near curtains.

Do not read in bed, either by candle or lamplight; place glass shades over gaslights in shop windows, and do not crowd goods too close to them.

No smoking should ever be permitted in warehouses, especially where goods are packed or cotton stored.

Stovepipes should be at least four inches from woodwork, and well guarded by tin or zinc.

Rags ought never to be stuffed into stovepipe holes; openings in chimney flues for stovepipes which are not used, ought always to be securely protected by metallie coverings.

Never close up a place of business in the evening without looking well to the extinguishment of lights and the proper security of the fires.

When retiring to bed at night, always take every precaution to see that there is no danger from your fires; that the gas, if you use it, is properly extinguished; and take care that your lights are safe.

Should a Fire Break Out, send off to the nearest engine or police station.

Fill Buckets with Water, carry them as near the fire as possible, and throw the water in showers on the fire.

If a Fire is Violent, wet a blanket, and throw it on the part which is in flames.

Should the Bed or Window Curtains catch fire, lay hold of any woolen garment, and beat it on the flames until extinguished.

Do Not Leave the Window or Door Open in the room where the fire has broken out, as the current of air increases the force of the fire.

A Solution of Pearlash in Water, thrown upon a fire, extinguishes it instantly. The proportion is a quarter of a pound, dissolved in some hot water, and then poured into a bucket of common water.

Children should be early taught how to press out a spark when it happens to reach any part of their dress, and also that running into the air will cause it to blaze immediately.

Fire Screens—Paper,

Should be sized and coated with transparent varnish, otherwise they will soon become soiled and discolored.

Fireworks—Sulphide of Cadmium in.

In the following composition it is said that sulphide of cadmium gives a white flame, which is surrounded by a magnificent blue margin: Saltpetre, 20 parts; sulphur, 5; sulphide of cadmium, 4; powdered charcoal, 1.

Fireworks—Iron Sand in.

Used to give corruscations in fireworks; is far better than iron or steel filings. It is made by beating cast steel or iron into small pieces on an anvil. These are sifted into four sizes, the smallest for the smallest pieces, and vice versa. The corruscations produced by these are exceedingly

brilliant. The sand should be kept in a dry place in a well closed bottle. Fireworks containing it should not be made very long before using.

Fireworks—To Represent Cordage in.

Antimony, 1 part; juniper resin, 1 part; nitre, 2 parts; sulphur, 16 parts. Mix, and imbrue soft ropes with the composition.

Fireworks—Touch-paper for.

Soak unglazed paper in a solution of nitre in vinegar or water. The stronger the solution, the faster will it burn. A good plan is to dip it in a weak solution, dry it, try it, and if it burns too slowly, make the solution stronger and dip it again.

Fireworks—Quick Match for.

This is made by immersing lamp-wick in a solution of saltpetre with mealed powder, winding it on a frame, and afterwards dusting with mealed powder. To 1 lb. 12 oz. of cotton, take saltpetre, 1 lb.; alcohol, 2 quarts; water, 3 quarts; solution of isinglass (1 oz. to the pint), 3 gals.; mealed powder, 10 lbs.

Fireworks.

Port Fires.—Take of sulphur, 2 parts; saltpetre, 6 parts; mealed powder, 1 part. This is rammed into cases of from six inches to two feet long, and one-half inch internal diameter. They should be lightly rammed. To give a brilliant flame add 1 part of iron sand; for a dark flame, 1 part of powdered charcoal.

Stars (Common).—Saltpetre, 1 lb.; sulphur, 4½ oz.; antimony, 4 oz.; isinglass, ½ oz.; camphor, ½ oz.; alcohol, ¾ oz.

White.—Mealed powder, 4 oz.; saltpetre, 12 oz.; sulphur, 6½ oz.; oil of spike, 2 oz.; camphor, 5 oz. The above are to be made into balls, rolled in grained powder and dried in the sun. Used in the manufacture of Roman candles, rockets, etc.

Trailed Stars.—Saltpetre, 4 oz.; sulphur, 6 oz.; sulphate of antimony, 2 oz.; rosin, 4 oz.

With Sparks.—Mealed powder, 1 oz.; saltpetre, 1 oz.; camphor, 2 oz.

Colored Stars.—May be made by using any of the receipts for colored fires, with a solution of isinglass, ½ oz.; camphor, ½ oz.; alcohol, ¾ oz. Make into balls of the requisite size, roll in gunpowder, dry in the sun.

Roman Candles.—Mealed powder, ½ lb.; saltpetre, 2½ lbs.; sulphur, glass dust, each, ½ lb. This is rammed in cases as follows: Put at the bottom of the case a small quantity of clay, then some gunpowder, then a wad of paper, then ⅙ of the height of the case of the composition, then a wad and powder and a star or ball, then more composition, and so on till the case is filled. The wads must be loose (only to prevent the mixing of the composition and gunpowder), and the ramming should not be begun until the case is ⅓ filled, and then should be gentle lest the stars be broken.

Chinese Fire.—(Red.)—Saltpetre, 1 lb.; sulphur, 3 oz.; charcoal, 4 oz.; iron sand, 7 oz.—(White.)—Saltpetre, 1 lb.; mealed powder, 12 oz.; charcoal, 7½ oz.; iron sand, fine, 11 oz.

Golden Rain.—Mealed powder, 4 oz.; saltpetre, 1 lb.; sulphur, 4 oz.; brass filings, 1 oz.; sawdust, 2¼ oz.; glass powder, 6 drs.

Silver Rain.—Mealed powder, 2 oz.; saltpetre, 4 oz.; sulphur, 1 oz.; steel dust, ¾ oz.

Wheel Cases.—Mealed powder, 2 lbs.; saltpetre, 4 oz.; steel filings, 6 oz.

For Rockets.—(Four - Ounce.) — Mealed powder, 1 lb.; charcoal, 1 oz.; saltpetre, 4 oz.—(Eight - Ounce.) — Mealed powder, 1 lb. 1 oz.; saltpetre, 4 oz.; sulphur, 3½ oz.; charcoal, 1 oz.—(One pound.) — Mealed powder, 1 lb.; charcoal, 3 oz.; sulphur, 1 oz.

Fishing—Lines for.

The most serviceable lines are made of pure horsehair, for such as are composed of hair and silk, from retaining the water, soon become rotten; neither can they be thrown with the same precision, as they get soft and flabby, and fall heavily on the water. Good lines should be perfectly twisted, round, and without any irregularities, and in point of color those which are of a light gray, or brown, or white, are the most useful: some anglers, however, prefer a light sorrel tint. The bottom or casting line for fly fishing, which is affixed to the line on the reel, must be of gut, and of about the same length as the rod; the gut should be strong at the top, and very fine at the dropper or bottom, and before any flies are made upon it, it should be picked and tried to see that it is of a uniform thickness throughout.

Fishing—Floats for.

Floats can always be procured ready made, of all sizes and every variety of shape. For small fish and slow streams, quill floats will be found the best, and in strong and rapid rivers, or for the larger kinds of fish, cork floats can be employed. If the angler prefers making cork floats to purchasing them, he must procure a piece of fine-grained sound cork, and bore a hole through it with a small red hot iron, then put in a quill which will exactly fit the aperture, and afterward cut the cork into the shape of a pear. When this is finished he must grind it smooth with pumice stone, and paint and varnish it; and if he uses two or three bright colors in the painting he will add much to the gaiety of its appearance. The cork float should swim perpendicularly in the water, so that it may betray the slightest nibble, and must be carefully poised by fastening a few shot on the line; the sizes of shot proper for this purpose are from swan shot down to No. 4; they should be split about half

way through with a small chisel, so as to make a gap sufficiently wide to admit the line, and when the latter is put in the gap should be closed with a pair of pliers.

Fishing—Reels for.

A reel is very useful, as with its assistance parts of a river may be reached which could not otherwise be attempted; it enables the angler also to play his fish with the greatest ease and certainty. When purchasing a reel, a multiplying one should be selected, as it is superior to all others, and enables the angler to lengthen and shorten his line rapidly. It must be kept clean and well oiled, and great care taken that no grit of any kind gets into it.

Fishing—Hooks for.

Hooks are of various patterns and sizes, beginning at No. 1, which is the largest salmon size, and ending at No. 14, called the smallest midge. American hooks are very good, especially those made by Clarke's patent. Linnereck hooks are good; and those made in Dublin, marked with 2 F's, 2 B's, and so on, are second to none. A bad hook, be it remembered, is worse than a bad knife, only fit to be thrown away.

Fishing—Baits for.

Fish, in their natural element, take such baits as the changing seasons produce, and will not at one time of the year bite at the same bait which they may be caught with at another; for instance, in the spring and autumn, worms may be used all day long, but in summer, worms must only be used early and late, morning and evening. An earth-worm is naturally the first bait the young angler looks out for; it is always to be had, is put on the hook without difficulty, and (excepting at the times above stated) may always be used for certain kinds of fish, with

the certainty of hooking something, if proper patience is used. When baiting with a worm, the hook should be put in close to the top of the worm's head, and then passed carefully down, gently working the worm up the hook at the same time. Not more than a quarter of an inch of the worm should be left hanging over the hook. To scour or starve these worms, and get rid of the earthy matter they contain, they must be placed in damp moss, not sodden with water, but only damp. In creeping through the fibres of the moss, they compress and empty themselves.

The ash-grub, which is found in the rotten bark of a tree that has been felled some time, is an excellent bait for all small "pan" fish, such as chub, sun-fish, perch, etc., and may be used all the year round; it should be kept in wheat bran. All grubs or worms make good bait for little fresh water fish.

Grasshoppers are good baits during June, July, and August; their legs and wings must be taken off before they are put on the hook.

Shrimp are good for bass, tom cod, and LaFayette fish. Crab and clam are good bait for these also, shedder crab especially.

Fishing—Paste Baits for.

Cheese Pastes.—Take some old cheese and the crumb of white bread, and mix them up to a tolerable degree of consistency, and you will make a good bait for chub.

White Bread Paste.—Knead crumbs of white bread dipped in honey in the palm of your hand until they attain a fair degree of consistency; it is good for small fish.

Wheat Paste.—Procure some new wheat, remove the husks, and afterward pound it; then pour some milk or water over, and gently simmer the composition; when cold, it will be

somewhat like a jelly, and a very small piece only should be put on the hook.

Paste baits are not at all adapted for swift, running streams, but for quiet brooks, ponds, or very still rivers; you must be sharp of eye, and quick to strike, otherwise both fish and bait will give you the slip. A quill float is better than a cork one when baiting with paste, as it betrays the slightest nibble.

Fishing—Ground Bait for.

Ground baiting is a most essential part of angling, and ought never to be omitted, as success in bottom or float fishing cannot be expected, unless the proper means for drawing the fish together are resorted to. The object of throwing bait into the water, is to collect fish to one particular spot, and then to use a superior kind of bait, though of a similar kind, on the hook. Thus, if going to angle with earth worms, throw in for ground bait those that are well scoured, and fish with those that are well scoured.

For small creek fish, mix bran and clay together into lumps about the size of an apple; place some grubs in the middle, and close the clay over them. It is a very useful bait in a till pond, hole, or slight eddy.

Or take the crumb of white bread, soak it in water, squeeze it almost dry, add bran, and work them up together until they acquire the consistency of clay.

Grubs, worms, the toughest parts of crabs, lobsters, or clams, may be thrown in without taking the trouble of working them into balls or clay, if the water is perfectly still; but if you are fishing in a stream, such a system of ground baiting is injurious, as they are carried away by the stream, and draw the fish from the spot.

Fish—Chinese Art of Catching.

Take *Coculus Indicus*, pulverize and

mix with dough, then scatter it broadcast over the water as you would sow seed. The fish will seize it with great avidity, and will instantly become so intoxicated that they will float on their backs on the water, by dozens, hundreds or thousands, as the case may be. All that you now have to do is to have a boat or other convenience to gather them up, and as you gather, put them into a tub of clean water, and presently they will be as lively and healthy as ever.

Fish Charms.

The so called fish charms, as given in many books and retailed as great secrets, are as a rule a mass of nonsense, and when employed successfully make the fish caught undesirable for eating, impregnated more or less, as they must be, with the "charms." There remarks apply also to the above "Chinese art of catching." The only legitimate way of catching fish is by the hook and net and no other should be resorted to. Some of these "secrets" are as follows: For bait, take a handful of swamp-apple blossoms; put them in a glass jar or bottle, together with a gill of rum; cork the bottle tight and let it stand in the sun for three or four hours; then take half a pint of water that is found in places where grows the plant commonly termed flytrap. This plant, the botanical name of which is *dionæa muscipula*, vegetates in quagmires around fresh ponds. Saturate your bait with the liquid two or three hours before using. The liquid should be kept in a wooden or earthen vessel. Another is to put the oil of Rhodium on the bait when fishing with a hook, and you will always succeed; or, take the juice of smallage or lovage, and mix with any kind of bait. As long as there remain any kind of fish within many yards of your hook, you will find yourself busy pulling them out. Or, get over the water after dark, with a

light and a dead fish that has been smeared with the juice of stinking gladwin. The fish will gather around you in large quantities, and can easily be scooped up.

Fishing—With Natural Fly.

This consists in fishing with the living flies, grasshoppers, etc., which are found on the banks of the rivers or lakes where you are fishing; it is practiced with a long rod, running tackle, and fine line. When learning this system of angling, begin by fishing close under the banks, gradually increasing your distance until you can throw your live bait across the stream, screening yourself behind a tree, a bush, or a cluster of weeds, otherwise you will not have the satisfaction of lifting a single fish out of the water. In rivers where immense quantities of weeds grow in the summer, so as almost to check the current, you must fish where the stream runs most rapidly, taking care that in throwing your line into those parts you do not entangle it among the weeds. Draw out only as much line as will let the fly touch the surface, and if the wind is at your back, it will be of material service to you in carrying the fly lightly over the water. In such places the water is generally still, and your bait must, if possible, be dropped with no more noise than the living fly would make if it fell into the water. Keep the top of your rod a little elevated, and frequently raise and depress it and move it to and fro very gently in order that the fly by its shifting about may deceive the fish and tempt them to make a bite. The instant your bait is taken, strike smartly, and if the fish is not so large as to overstrain and snap your tackle, haul it out immediately, as you may scare away many while trying to secure one. There are very many baits which may be used with success in natural fly fishing. But the best rule

is to cut open the first fish caught, to see what flies are in season.

Fishing—With Artificial Fly.

Artificial fly fishing consists in the use of imitations of the natural flies and is unquestionably the most scientific mode of angling, requiring great tact and practice to make the flies with neatness and to use them successfully, and calling forth as it does so much more skill than the ordinary method of bottom fishing, it merits its superior reputation. It possesses many advantages over bottom fishing, but at the same time it has its disadvantages; it is much more cleanly in its preparations, inasmuch as it does not require the angler to grub for clay and work up a quantity of ground baits, and is not so toilsome in its practice, for the only incumbrances which the fly fisher has are simply a light rod, a book of flies, and whatever fish he may chance to catch; but there are several kinds of fish which will not rise at a fly, and even those that do will not be lured from their quiet retreat during very wet or cold weather. It would be as well if the young angler could go out for some little time with an old experienced hand, to observe and imitate his movements as closely as possible.

Fishing—Without Nets, Lines, Spears, Snares, "Bobs," or Bait.

The following plan we have known used with great success to catch fish in winter, in Pennsylvania. Where the water was clear and still, say the back water of a dam, it would often freeze hard enough to make good skating and yet the ice would be so clear that the fish could be seen lying at the bottom or lazily moving about. By striking the ice (not too hard) immediately over the fish, a sufficient concussion would be produced to stun the fish. It would immediately turn over and

come up to the ice, its white belly showing clearly against the ice below, when we proceeded to cut a hole and take out the fish. A mallet generally was used to strike the ice, as we produced a stunning blow with it without killing the fish, as would be likely to occur were the blow struck with the poll of the ax. On taking the fish home and putting them into water, although some or all would be frozen stiff, quite a number would often revive, and it was to produce this result that the mallet was preferred to strike with.

Fishes.—To Preserve.

Large fishes should be opened in the belly, the entrails taken out, and the inside well rubbed with pepper, and stuffed with oakum. Small fishes, as well as reptiles and worms, may be put in spirit.

Flannels—To Shrink.

Before they are made up they should be well soaked, first in cold, then in hot water.

Fannels—To Wash.

These should always be washed with a lather of white soap, and in hot (but not boiling) water; do not use soda, as it changes the color. They should be washed and dried very quickly to prevent shrinking. In washing squeeze and knead them, but do not rub them.

Fleas—To Get Rid of.

Much of the largest number of fleas are brought into our family circles by pet dogs and cats. The oil of pennyroyal will drive these insects off; but a cheaper method, where the herb flourishes, is to throw your cats and dogs into a decoction of it once a week. When the herb cannot be gotten, the oil should be procured. In this case, saturate strings with it and tie them round the necks of dogs and cats. These applications should be repeated every twelve or fifteen days. Mint, freshly cut, and hung round a bedstead, or on

the furniture, will prevent annoyance from bed insects; a few drops of essential oil of lavender will be more efficacious. Persian insect powder is good.

Fleshworms.

These specks, when they exist in any number, are a cause of much unsightliness. They are minute corks, if we may use the term, of coagulated lymph which close the orifices of some of the pores or exhalent vessels of the skin. On the skin immediately adjacent to them being pressed with the finger nails, these bits of coagulated lymph, will come from it in a vermicular form. They are vulgarly called "flesh worms," many persons fancying them to be living creatures. These may be got rid of and prevented from returning, by washing with tepid water, by proper friction with a towel, and by the application of a little cold cream. The longer these little piles are permitted to remain in the skin the more firmly they become fixed; and after a time, when they lose their moisture, they are converted into long bony spines as dense as bristles, and having much of that character. They are known by the name of spotted aene. With regard to local treatment, the following lotions are calculated to be serviceable:

Distilled rose-water, 1 pint; sulphate of zine, 20 to 60 grains. Mix.

Another.—Sulphate of copper, 20 grains; rose-water, 4 ounces; water, 12 ounces. Mix.

Another.—Oil of sweet almonds, 1 ounce; fluid potash, 1 drachm. Shake well together, and then add rose-water 1 ounce; pure water, 6 ounces. Mix. The mode of using these remedies is to rub the pimples for some minutes with a rough towel, and then dab them with the lotion.

Another.—Wash the face twice a day with warm water, and rub dry with a coarse towel. Then with a soft towel rub in a lotion made of two ounces of

white brandy, one ounce of ecologne and one-half ounce of liquor potassa.

Flies (House)—To Destroy.

House flies are present just in proportion to the dirt and uncleanness there are in a house. The cleaner the house and surroundings, the fewer flies there will be.

They may be effectually destroyed by putting half a spoonful of black pepper in powder on a teaspoonful of brown sugar, and one teaspoonful of cream; mix them well together and place them in a room where the flies are troublesome, and they will soon disappear.

The butchers of Geneva have, from time immemorial, prevented flies from approaching the meat which they expose for sale, by the use of laurel oil. This oil, the smell of which, although a little strong, is not very offensive, drives away flies; and they dare not come near the walls or the wainscots which have been rubbed with it.

Flies are kept out of stables (where they propagate in great numbers) by using sawdust which is saturated with carbolic acid diluted—one part of acid to a hundred parts of water. The sawdust scattered about in stables keeps all flies away. A similar application of the acid ought to keep them from kitchens.

Twenty drops carbolic acid evaporated on a hot shovel, or a bit of camphor gum, size of walnut, held over a lamp until consumed, will drive away flies or mosquitoes.

Fly Paper—Adhesive.

Melt resin in any vessel over the fire, and while soft add to it enough sweet oil, lard or lamp oil, to make it when cold of the consistency of molasses. This spread upon writing paper with a brush will not dry in a long time and is so sticky as to hold fast the legs of any insect attracted to it, or accidentally coming in contact. It may be placed

about the house, the pantry, or elsewhere, and will soon attract and hold fast ants and other vermin. It is also used on table legs, the edges of shelves and other places to prevent the ascent of ants. Strips of this paper fastened closely about the trunks of trees, plants, etc., the varnish side out, prevents the ascent of insects. It possesses the great advantage over the ordinary fly papers in that it is not poisonous.

Floors—For Basements.

In the preparation for laying the floor, the ground underneath is dug out, so as to leave what is termed an "air space" between it and the joists. The airing of the under side of the floor is procured at the expense of the comfort of the upper surface, and consequently of that of the house itself; for the inch flooring is but slight defence against the cold, which must necessarily find its way beneath. A far better mode of flooring basements, cottages, dairies, etc., is to spread on the ground a bed of air-slaked lime, on which the joists should rest and be sunk, say an inch or two deep, so as to leave no chance for air to enter, and at the same time effectually keep out all vermin, as they will not attempt to burrow in lime. At first sight this seems to be an expensive mode of securing comfort, but it is quite the contrary. Ten bushels of lime is ample for a square of 10 feet (100 square feet), and there are very few localities in which lime is not cheap and plenty. Such an underlying of lime will prove a most desirable preservation of basement floors, and render a dwelling sanitary, warm and sound.

Floors—Cellar.

When it is inexpedient to go to the expense of cement, an excellent substitute is secured by taking coal-ashes and mixing them with water to the ordinary thickness of mortar. It does

not matter how many lumps or stones there are. Put it on about 4 inches thick; let it lie 24 hours, and then tamp it with a heavy block of wood 3 or 4 times a day until it is perfectly hard. It will be found to be as good as, if not better than, cement, and will not scale or crack off.

Floors—Soluble Glass for.

Instead of the old-fashioned method of using wax for polishing floors, soluble glass is now employed to great advantage. For this purpose the floor is first well cleaned, and then the cracks filled up with a cement of water-glass and a powdered chalk or gypsum; afterward a water-glass of 60 to 65 degrees, of the thickness of syrup, is applied by means of a stiff brush. Any desired color is to be imparted to the floor in a second coat of the water-glass, and additional coats are to be given until the requisite polish is obtained. A still higher finish may be given by pumicing off the last layer, and then putting on a coating of oil.

Floors—Mopping and Cleaning.

The practice of mopping floors too often is a loss of time and a waste of strength, and is as inconsistent with reason as the habit of blacking cooking stoves every time they are used; and it seems that wet floors are as detrimental to health as the dust sent forth by the too frequent use of the common stove blacking. Mopping painted floors too often with hot soap-suds, wears off the paint, causing needless expense of both time and money.

It is difficult to say how often a painted or an unpainted floor should be washed, for that depends on circumstances; but it requires that the cloth, mop and water, should be as clean as a supply of the latter will admit, and the floor wiped as dry as possible; and that every corner and other retired spots, under beds, bureaus, or any other articles which may be in the

apartments, should have a fair chance to partake of the cleansing. Scrub the floors well when you go at it; do it as follows:

Take some clean, well-sifted sand, scatter it on the floor, have ready one ounce potash dissolved in a pint of water, sprinkle it over the sand, and with a scrubbing brush and good mottled soap rub the boards along their length. Changing the water frequently and using it very hot, makes the boards white; the potash, if properly applied, will remove all stains.

Floors—To Remove Stains from.

For removing spots of grease from boards, take equal parts of fuller's earth and pearlash, a quarter of a pound of each, and boil in a quart of soft water; and, while hot, lay it on the greased parts, allowing it to remain on them for ten or twelve hours; after which it may be scoured off with sand and water. A floor much spotted with grease should be completely washed over with this mixture the day before it is scoured. Fuller's earth and ox-gall, boiled together, form a very powerful cleansing mixture for floors or carpets. Stains of ink are removed by strong vinegar, or salts of lemon will remove them.

Floors—Oiled.

Oiling improves a floor in several ways. Grease-spots, of course, will not affect the wood thus treated; and much less scrubbing than is necessary for a plain floor will suffice to keep it clean. Moreover, the appearance is improved by the oil. Many of our native woods, prepared in this manner, become positively handsome. Finally, it gives the surface a harder texture, which makes it wear longer and more uniformly.

Paint costs more, takes longer to dry, and wears off more easily, since it simply forms a crust or coating upon the surface; while oil penetrates the wood. Hence an oiled floor looks

better than a painted one, especially if a little color, such as Van Dyke brown, umber, or burned sienna is added to the oil.

To prepare a floor in this manner, take raw linseed oil, or some cheap oil, not offensive in odor, and capable of drying; mix it, if desired, with some such transparent color as those mentioned above; and apply it with a common paint brush. Lay it on smoothly, so that it will strike in uniformly over the whole surface, and not stand in spots. This may be done at night, after the day's work; and the place will be ready for use again the next morning. As far as the oiled surface is concerned, it might be stepped upon at once without injury; but there would be danger in that case of tracking the grease to other parts of the house. A new coat of oil applied in this way once or twice a year, is sufficient to keep a floor in perfect order.

Florida Water.

Take oil of bergamot 3 ounces, oil of cinnamon 4 drachms, tincture of benzoin 2 ounces, alcohol 30 (per cent. Baume) 1 gallon. Mix and filter.

Flowers—To Obtain from Bulbous Roots in Three Weeks.

Put quicklime into a flower-pot till it is rather more than half full; fill up with good earth; plant your bulbs in the usual manner; keep the earth slightly damp. The heat given out by the lime will rise through the earth, which will temper its fierceness; and in this manner beautiful flowers may be obtained at any season.

Flowers—To Obtain Fresh-Blown in Winter.

Choose some of the most perfect buds of the flowers you would preserve, such as are latest in blooming and ready to open; cut them off with a pair of scissors, leaving to each, if possible, a piece of stem about three inches long; cover

the end of the stem immediately with sealing wax, and when the buds are a little shrunk and wrinkled, wrap each of them up separately in a piece of paper, perfectly clean and dry, and lock them up in a dry box or drawer; and they will keep without corrupting. In winter, or at any time when you would have the flowers bloom, take the buds at night and cut off the end of the stem sealed with wax, and put the buds into water wherein a little nitre or salt has been dissolved, and the next day you will have the pleasure of seeing the buds open and expand themselves, and the flowers display their most lively colors and breathe their agreeable odors.

Flowers—To Preserve and Restore.

Flowers may be preserved in a fresh state for a considerable time, by keeping them in a moist atmosphere. A flat dish of porcelain had water poured into it. In the water a vase of flowers was set; over the whole a bell-glass was placed, with its rim in the water. The air that surrounded the flowers being confined beneath the bell-glass, was kept constantly moist in the water that rose into it in the form of vapor. As fast as the water was condensed it ran down the sides of the bell-glass back into the dish; and if means had been taken to inclose the water on the outside of the bell-glass, so as to prevent its evaporating into the air of the sitting-room, the atmosphere around the flowers would have remained continually damp. We recommend those who love to see plenty of fresh flowers in their sitting-rooms in dry weather to adopt this method. The experiment can be tried by inverting a tumbler over a rose-bud in a saucer of water.

Another method by which some flowers may be preserved for many months, is to carefully dip them, as

soon as gathered, in perfectly limpid gum water, and after allowing them to drain 2 or 3 minutes, to set them upright, or arrange them in the usual manner in an empty vase. The gum gradually forms a transparent coating on the surface of the petals and stems, and preserves their figure and color long after they have become dry and crisp.

Faded flowers may be generally more or less restored by immersing them half-way up their stems in very hot water, and allowing them to remain in it until it cools, or they have recovered. The coddled portion of the stems must then be cut off, and the flowers placed in clean, cold water. In this way a great number of faded flowers may be restored, but there are some of the more fugacious kinds with which it proves useless.

Flowers (Cut)—To Preserve.

Add to the water a little of a solution of carbonate of ammonia and a few drops of phosphate of soda. The effect of this in giving the flower a deeper color and a stronger appearance is quite wonderful, and by cutting off every other day about one-half inch of the stems of the flowers with a sharp knife, they may be kept as long as their natural life would last.

Fossils—To Preserve the Form of.

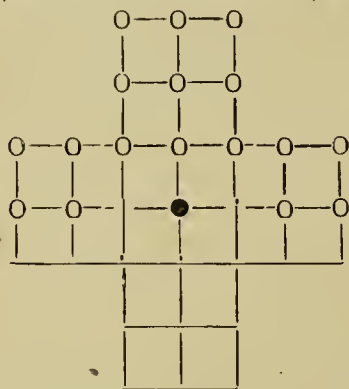
Fossils are often so friable that they fall to pieces on the slightest handling. To make such remains coherent saturate them in a solution of silicate of potash.

Fowls—Old.

To have the poultry yard profitable, the fowls should not be kept until they are old. There is no objection to preserving a favorite cock, as long as he is active and lively, but hens after three years will not produce as many eggs as those of one or two years.

Fox and Geese.

This old-fashioned game is played on a solitaire board. Seventeen geese occupy the upper part of the board lines, with the fox in the middle, thus—



The object of the game is to confine the fox in a corner, so that he cannot move. The geese march forward in straight lines, not on the diagonals; and whenever a goose is on the spot next the fox, the latter can take him, as in checkers, by jumping over to the vacant spot beyond. The fox can move backwards, forwards or sideways on the straight lines; but the geese must go forward, and are not allowed to retreat. Properly played, the geese must win; but when the number of geese is reduced to six, it is impossible for them to confine the fox. There are several ways of playing the game, by placing the fox and geese in other positions, or by insisting on the fox catching all the geese. In the latter case, the fox chooses his own starting place. The game may also be played with eight geese and a fox.

Foxes—To Trap.

The trap should be well smeared with blood, or beeswax, to destroy the odor of the iron. Set it in soft earth, packing moss or leaves lightly around the pan and jaws. Bait with fried meat. An old trapper says: "To make the allurement doubly sure, obtain from the female of the dog, fox or wolf,

the matrix, in the season of coition, and preserve it in alcohol, tightly corked. Leave a small portion of it on something near the trap; also, when visiting the traps, put some on your boots."

Another method is to make a bed of chaff in the open field, in a locality the fox is supposed to visit, but where it will be least likely to be visited by passing hunters. Visit it daily and stir into the chaff very old or toasted cheese, or scraps of meat made fine, using the utmost caution not to change the appearance of the bed or its surroundings, and making as few tracks as possible. The materials of which the bed is composed should not be handled any more than is absolutely necessary. Too much care cannot be taken in making the bed; for if foxes are plenty, and you get several to visit it, it will last for some time, and will afford you a great deal of amusement. As soon as you are satisfied a fox has visited the bed regularly for five or six nights, you may put in your trap. It should be a small-sized, double spring, and should be fastened to a clog, light enough for the fox to drag, but heavy enough so that he cannot get too far away; though if there is snow on the ground, there will be no difficulty in finding him, if he goes some distance. He may be caught the first night, but more likely than not, will dig out your trap, or show his contempt in some other way, compelling you to bring into force all your ingenuity, before your efforts are successful.

Frames—Gilt.

Rub with a sponge moistened with turpentine.

Frames (Gilt)—To Revive.

White of eggs, 2 oz.; chloride of potash or soda, 1 oz.; mix well, blow off the dust from the frames; then go over them with a soft brush dipped in the

mixture, and they will appear equal to new.

Frames (Picture)—To Prevent Flies Soiling.

To prevent the flies going on picture frames and furniture, immerse a quantity of leeks for five or six days in a pail of water, and wash the pictures, etc., with it.

Freckle Lotion.

Muriate of ammonia, 1 drachm, spring water 1 pint, lavender water 2 drachms; apply with a sponge 2 or 3 times a day.

Freezing Mixture—Washing Soda as a.

If nitrate of ammonium in coarse powder is put into the cooler, and there is then added twice its weight of freshly-crushed washing soda, and an equal quantity of the coldest water that can be obtained, an intensely powerful frigorific mixture is the result, the cold often falling to forty degrees below freezing. This is by far the most efficacious freezing mixture that can be made without the use of ice or acids. But, unfortunately, it has the almost insuperable objection, that the nitrate of ammonium is decomposed by the soda, and cannot be recovered by evaporation; this raises the expense so much that the plan is not very useful.

Freezing Mixture—Sal Ammoniac.

If the ordinary sal ammoniac of the shops is used, it will be found both difficult to powder, and expensive; in fact, it is so exceedingly tough, that the only way in which it can be easily divided, except in a drug mill, is by putting as large a quantity of the salt into water, which is actually boiling, as the latter will dissolve; as the solution cools, the salt crystallizes out in the solid form, and if stirred as it cools, it separates in a state of fine division.

As this process is troublesome, and as the sal ammoniac is expensive, it is better to use the crude muriate of ammonium, which is the same substance as sal ammoniac before it has been purified by sublimation. This is not usually kept by druggists, but may be readily obtained of any of the artificial manure merchants, at a very moderate rate; and its purity may be readily tested by placing a portion of it on a red-hot iron, when it should fly off in a vapor, leaving scarcely any residue.

Frosting Glass.

Take sugar of lead well ground in oil, applied as other paint; then pounced while fresh with a wad of batting held between the thumb and finger. After which it is allowed to partially dry; then with a straight-edge laid upon the sash, you run along by the side of it, a stick sharpened to the width of line you wish to appear in the diamonds, figures, or squares, into which you choose to lay it off; most frequently, however, straight lines are made an inch or more from the sash, according to the size of light, then the center of the light, made into diamonds.

Another.—A common preparation for frosting glass to prevent the too direct action of the solar heat in green-houses, etc., is a wash of whiting and glue-water. It must not contain too much glue, as it is desired to wash it off late in the season by the action of rain, to compensate for the decrease in temperature.

Franklin on Frugality.

We quote some of this great philosopher's proverbial truisms on this subject.

"A man may, if he knows not how to save as he gets, keep his nose all his life to the grindstone, and die not worth a groat at last. A fat kitchen makes a lean will."

"Many estates are spent in the getting, Since women for tea forsook spinning and knitting,
And men for punch forsook hewing and splitting."

"If you would be wealthy, think of saving as well as of getting. The Indies have not made Spain rich, because her out-goes are greater than her in-comes."

"Away with your expensive follies, and you will not have so much cause to complain of hard times, heavy taxes, and chargeable families."

"What maintains one vice would bring up two children."

"You may think, perhaps, that a little tea, or superfluities now and then, diet a little more costly, clothes a little finer, and a little entertainment now and then, can be no great matter; but remember, 'Many a little makes a mickle.'"

"Beware of little expenses"; "A small leak will sink a great ship"; "Who dainties love, shall beggars prove"; "Fools make feasts and wise men eat them."

"Here you are all got together to this sale of fineries and nick-nacks. You call them goods; but if you do not take care they will prove evils to some of you. You expect they will be sold cheap, and perhaps they may, for less than they cost; but if you have no occasion for them they must be dear to you."

"Buy what thou hast no need of, and ere long thou shalt sell thy necessities."

Fruits—To Gather.

In respect to the time of gathering, the criterion of ripeness, adopted by Forsyth, is their beginning to fall from the tree. Observe attentively when the apples and pears are ripe, and do not pick them always at the same regular time of the year, as is the custom with many. A dry season will forward the ripening of fruit, and a

wet one retard it, so that there will sometimes be a month's difference in the proper time for gathering. If this is attended to the fruit will keep well, be plump and not shrivelled, as is the case with all fruit that is gathered before it is ripe.

The art of gathering is to give them a lift, so as to press away the stalk, and if ripe they readily part from the tree. Those that will not come off easily should hang a little longer; for when they come off hard they will not be so fit to be stored, and the violence done at the foot-stalk may injure the bud there formed for the next year's fruit.

Let the pears be quite dry when pulled, and in handling avoid pinching the fruit, or in any way bruising it, as those which are hurt not only decay themselves, but presently spread infection to those near them; when suspected to be damaged, let them be carefully kept from the others, and used first; as gathered, lay them gently in shallow baskets.

Fruits—Time for Gathering.

This should take place in the middle of a dry day. Plums readily part from the twigs when ripe; they should not be much handled, as the bloom is apt to be rubbed off. Apricots may be accounted ready when the side next the sun feels a little soft upon gentle pressure with the finger; they adhere firmly to the tree, and would over-ripen on it and become mealy. Peaches and nectarines, if moved upwards, and allowed to come down with a slight jerk, will separate, if ready; and they may be received into a tin funnel lined with velvet, so as to avoid touching with the fingers or bruising.

A certain rule for judging of the ripeness of figs is to notice when the small end of the fruit becomes of the same color as the large one.

The most transparent grapes are the most ripe. All the berries in a bunch

never ripen equally; it is therefore proper to cut away the unripe or decayed berries before presenting the bunches at table.

Immature fruit never keeps so well as that which nearly approaches maturity. Winter apples should be left on the trees till there be danger of frost; they are then gathered on a dry day.

Fruit—Keeping.

Have your cellar or fruit-room neither too dry nor too moist. This is indispensable. If moist, your fruit will rot; if dry, it will shrink. If you are incredulous about this, set your fruit in your dwelling-room, or where there is a high, dry temperature. This will satisfy you as to the shrinking. Dampen a bin or barrel, and keep for awhile (with the fruit in it), and you will need no more urging. The "course between," as the old adage has it, is the right way. I know we are apt to have our hobbies and go to extremes. The course between is not always relished.

Fruit must be put where there is not sufficient moisture to rot it, as an excess will surely do. On the other hand, the dry must be avoided, or there will be shrinking and a dry fruit. This is as common an experience as life itself. Open bins, unless the cellar or fruit-room be very damp, will dry the fruit. This is generally so. Open barrels are less affected in this way, but still affected. The best way is to close your barrel after the fruit has passed through its sweating, which it will do in a few days, and leave a small open space, say a couple of apertures across the head of the barrel, of half an inch or less in diameter. Or, you are pretty safe (in the case of apples, which are more particularly referred to) to head up tight, after the sweating operation has gone through with, and the fruit is again dry. This we have found eminently successful. We have

found some mold where the barrel was closed as soon as filled, the fruit getting moist (sweating), and the moisture, instead of passing off by the vent, had to be absorbed by the wood of the barrel. But before this is done mischief will be wrought. Still we have known cases of clear exceptions. But this will not do; we want cases without exceptions, without doubt; we want to save our fruit beyond peradventure. And we can in the way we have described.

Temperature.—As to temperature, this cannot be too low, providing it does not freeze the fruit. And uniformity is as important as depression of heat. These two are the vital and important points. Kept at the freezing point, or just out of its range, there will be little change in the fruit, either to rot or to mature. An apple can thus be kept "green" the winter through—for aught we know any apple—but certainly the winter fruit. We have it, therefore, in our power, to ripen or not as we like, and this is quite an advantage. We could not well do without it. We keep cold the one part of our cellar, that containing the spring fruit. Frost sometimes steals upon us, but we permit it to steal gradually out again; for the world we would not hurry it, for that would spoil our fruit. When once frosted we permit it to remain so as long as we can, for that is a safe keeping so long as it lasts.

Another Method.—The following method of preserving apples is from an English agricultural periodical published more than thirty years ago. As the method proposed is easily available at a farm house and is simple, we think it worthy of trial: It seems not to be generally known that apples may be kept the whole year round, by being immersed in grain, which receives no injury from their contact. If the American apples were packed

among grain, they would arrive here in much better condition than they do at present.

Fruit—Sun Printing on.

Monograms, initial letters, or other designs, can be printed on such fruit as apples, pears or peaches by the action of the sun, with very pretty effect, of either a light or dark color. To do this, draw the monogram, letter or design on a piece of writing paper, and paste it with mucilage or glue upon the side of the fruit exposed to the sun just before the fruit begins to color. When the fruit is ripe, and the paper is removed, the design will appear in a lighter or different color to the rest of the fruit; as, for instance, if the experiment is tried on a yellow-fleshed peach with a red cheek, the design will appear in gold, surrounded with red. If the opposite effect is intended, take a small oval or circular piece of paper, and cut out or pierce the letter or design in it, and paste on the fruit, which, when ripe, will have the design in high color on a yellow or on a light green ground of the shape of the piece of paper, and this again will be surrounded by the brighter color of the fruit.

Fruit Trees—Over-bearing.

The bending of branches of trees by an over crop of fruit is most injurious; for the pores of the woody stalk are strained on one side of the bend and compressed on the other; hence the vessels through which the requisite nourishment flows being partially closed, the growth of the fruit is retarded in proportion to the straining and compression of the stalk.

Fruits—Thinning.

The commercial side of fruit-growing demands thinning of nearly all your fruits. You will get more bushels to the tree; within reasonable bounds, the more you throw away the

more pounds or bushels you will have left; increased size more than makes up loss in number. In thinning Japanese plums I should leave the fruit four inches apart, and peaches from five to six inches. If you will make a practice of thinning your fruit from the trees, you will usually get four dollars for one. I have often had it increase the crop fifty per cent., and the selling price 500 per cent.—J. H. Hale (the great peach-grower).

Fuel

Is made of all sorts of materials, from dried dung to hydrogen gas, and its heating power is measured by the "unit," or amount required to raise 1 lb. of water 1 deg. Fahr. The "calorific" power of fuel therefore represents the number of lbs. of water which can be raised 1 deg. Fahr. in temperature by the combustion of 1 lb. of the particular fuel; and it varies very greatly, dry wood having only 7353 units, alcohol 12,330, coke 12,800, ordinary gas 21,344, and hydrogen 62,031. Consequently, wood is only used in countries which have little or no coal.

Fuel—Economy of.

There is no part of domestic economy which everybody professes to understand better than the management of a fire, and yet there is no branch in the household arrangement where there is a grèater proportional and unnecessary waste than arises from ignorance and mismanagement in this respect.

Fire, To Light a Grate.—Before lighting the fire in the morning, thoroughly clean out the grate; lay a piece of thick paper, cut to the form and size of the grate, at the bottom; pile up fresh coal, nearly as high as the level of the top bar; the pieces should be about the size of small potatoes or walnuts, but this is not absolutely necessary; the larger lumps should be laid in front, the smaller ones

behind; then put a liberal supply of paper, or shavings, and sticks, on the top, and cover the whole with yesterday's cinders, adding a very little coal. Thus, it will be seen, the fire is to be lighted at the top. The results will not be only satisfactory, but astonishing. The fire lights up at once, without further trouble. The center of the fuel soon catches, and the inferior strata of coal ignites. The fire spreads downwards, and the smoke is forced to pass through the upper layers of burning coal; the consequence is, there is perfect combustion, the great volume of gas and smoke usually sent off from fires, and which consists of the most combustible part of coal, being thoroughly consumed, and yielding heat. A fire so made will go on burning for six, eight, or even ten hours, without poking, without adding fresh coal, or any attention whatever. There is little or no smoke, and the fire gives out a pleasant and uniform glow. One fair trial of this system will satisfy everybody. It will sometimes be necessary to loosen, or stir slightly the upper part of the fire, if it begins to cake, but the lower part must not be touched, otherwise it will burn away too soon. The above method is best adapted for rooms, and offices, where the fires are not required for cookery immediately after being lighted, as the heat is developed more gradually than in the old method of under-lighting. Deep grates are best suited for this system.

Fires, Regulation of.—Fires upon this plan may be regulated to the temperature of the weather, and to the number of hours they are required to burn. For instance:—When the weather is very cold, and the fire requires to be lighted early, and kept up until late, put a much deeper layer of coal in the bottom—quite up to the top bar; when the weather is mild, etc., then lay the coals only up to the

second bar from the top, and so on. When you have tried this experiment a few times, and are fully satisfied with it, have pieces of sheet iron, cut to fit the bottom of your grates, instead of the paper. This will save the trouble of cutting the papers daily, and the sheet iron will last an indefinite time.

Fires, Clear, for Cooking.—After making your fire as directed, replenish it with bits of coke and you will save half the cost of coal fires.

The Use of the Poker should be confined to two particular points—the opening of a dying fire, so as to admit the free passage of the air into it, and sometimes, but not always, through it; or else, drawing together the remains of a half-burned fire, so as to concentrate the heat, while the parts still ignited are opened to the atmosphere.

When Using a Pair of Bellows to a fire only partially ignited, or partially extinguished, blow, at first, not into the part that is still alight, but into the dead coals close to it, so that the air may partly extend to the burning coal. After a few blasts blow into the burning fuel, directing the blast partly towards the dead coal, when it will be found that the ignition will extend much more rapidly than under the common method of blowing furiously into the flame at random.

Preserve the Coal Ashes which are usually thrown away as worthless. When you have a sufficient quantity, add to them an equal amount of small coal from your cellar, and then pour on a little water, and mix with a shovel. Use this compost for placing on the top or the back of the fire. It will burn brightly and pleasantly and only a little dust will remain unconsumed.

Fill up Your Coal Cellars in the Middle of Summer when coal is cheapest, instead of waiting for the winter, when it gets dearer.

Slow Combustion Fire Grates.—Many of the modern grates constructed

on this principle will be found to effect a great saving in the consumption of fuel, and at the same time throw out greater heat into the room than the old-fashioned varieties.

Fuel—A Cheap.

One bushel of small coal or sawdust, or both mixed together, two bushels of sand, one bushel and a half of clay. Let these be mixed together with common water, like ordinary mortar; the more they are stirred and mixed together the better; then make them into balls, or, with a small mold, in the shape of bricks; pile them in a dry place, and use when hard and sufficiently dry. A fire cannot be lighted with them, but when the fire is lighted, put two or three on behind with some coals in front, and the fire will be found to last longer than if made up in the ordinary way.

Fungi—To Preserve.

Take two ounces of sulphate of copper, or blue vitriol, and reduce it to powder, and pour upon it a pint of boiling water, and when cold, add half a pint of spirits of wine; cork it well, and call it "the pickle." To eight pints of water add one pint and a half of spirits of wine, and call it "the liquor." Be provided with a number of wide-mouthed bottles of different sizes, all well fitted with corks. The fungi should be left on the table as long as possible, to allow the moisture to evaporate; they should then be placed in the pickle for three hours, or longer, if necessary; then place them in the bottles intended for their reception, and fill with the liquor. They should then be well corked and sealed, and arranged in order with their names in front of the bottles.

Furnaces—Prevention of Smoke in.

The theory of the prevention of smoke is very simple; it is only neces-

sary to secure the burning of the gases, instead of letting them escape, unconsumed, up the chimney; and in every invention which has yet been brought forward, the object sought to be achieved is the passage of the products of the newly-supplied coal over that which is already a bright red. One class of inventors has endeavored to accomplish this by turning the gases back with a deflector placed behind the fire; another has employed two furnaces, and fed them alternately; and the third has supplied additional fresh air so as to mix with the deleterious gases, and facilitate their burning to an incandescent mass. Now, all these automatic arrangements are rendered unnecessary if the stoker exercises ordinary care. All he has to do is to well push back the red hot coals in the furnace, and feed the fresh coal near the mouth; and consequently manufacturing companies have found that they only had to give the men a little extra upon their week's pay if they avoided making smoke, and fine them if they made smoke, to insure an entire absence of the nuisance, and increased economy in the use of coal—an important consideration, especially in cases where large quantities are used.

Furniture—Care of.

Keep the paste or oil in a proper can or jar, that there may be no danger of upsetting when using it. Have two pieces of woollen cloth, one for rubbing it on, the other for rubbing it dry and polishing; also an old linen cloth to finish with, and a piece of smooth, soft cork to rub out the stain. Use a brush if the paste be hard. Always dust the table well before the oil or paste is put on; and, if it should be stained, rub it with a damp sponge, and then with a dry cloth. If the stain does not disappear, rub it well with a cork or a brush the way the wood grows; for if rubbed cross-grained it will be sure to

scratch it. Be careful to keep the cork and brush free from dust and dirt. When the dust is cleaned off and the stains have been got out, put on the oil or paste, but not too much at a time; rub it well into the wood. If oil, be as quick as possible in rubbing it over the table, and then polish it with another woolen cloth. If wax, put a little bit on the woolen cloth, with the finger or a small stick; rub it well with this till the table has a high polish, then have another cloth to finish it with. Be very careful to have the edges of the table well cleaned, and the oil and wax well rubbed off.

The furniture which is not in constant use will not require to be oiled above once a week; it ought, however, to be dusted every day and well rubbed. Tables which are used daily must be well rubbed every morning, and great care should be taken to remove all spots from them, particularly ink. This can very easily be done, if not left to dry long, by putting on a little salts of lemon with the finger.

When cleaning tables or chairs, be careful to remove them into the middle of the room, or at a distance from the wall. If the sideboard or sidetable is fixed to the wall, be still more careful in cleaning it, and roll up the woolen cloth tight in the hand, and into a small compass.

Furniture—To Take Bruises Out of.

Wet the part with warm water; double a piece of brown paper five or six times, soak it in warm water, and lay it on the place; apply on that a warm, but not hot, flat-iron till the moisture is evaporated. If the bruise be not gone, repeat the process. After two or three applications the dent or bruise will be raised to the surface. If the bruise be small, merely soak it with warm water, and hold a red-hot iron near the surface, keeping the surface

continually wet—the bruise will soon disappear.

Furniture—To Polish.

This forms an important part of domestic economy, not only in regard to neatness, but also in point of expense. The readiest mode consists in good manual rubbing, or the application of a little elbow-grease, as it is whimsically termed; but our finest cabinet work requires something more, where brilliancy of polish is of importance.

Italian Cabinet Work in this respect excels that of any other country. The workmen first saturate the surface with olive oil, and then apply a solution of gum arabic dissolved in boiling alcohol. This mode of varnishing is equally brilliant, if not superior to, that employed by the French in their most elaborate works.

Furniture—A Good Polish for.

A good polish for furniture, which has less the appearance of a hard varnish, and may always be applied so as to restore the pristine beauty of the furniture by a little manual labor. Heat a gallon of water, in which dissolve one pound and a half of potash; and a pound of virgin wax, boiling the whole for half an hour, then suffer it to cool, when the wax will float on the surface. Put the wax into a mortar, and triturate it with a marble pestle, adding soft water to it until it forms a soft paste, which, laid neatly on furniture, or even on paintings, and carefully rubbed when dry, with a woolen rag, gives a polish of great brilliancy, without the harshness of the drier varnishes.

Furniture Cream.

Beeswax, 1 lb.; soap, 4 oz.; pearl ash, 2 oz.; soft water, 1 gal.; boil together until mixed.

Furniture Oil.

Acetic acid, 2 drs.; oil of lavender

$\frac{1}{2}$ dr.; rectified spirit, 1 dr.; linseed-oil, 4 oz.

Another.—Linseed oil, 1 pt.; alkanet root, 2 oz.; heat, strain, and add lac varnish, 1 oz.

Another.—Linseed oil, 1 pt.; rectified spirit, 2 oz.; butter of antimony, 4 oz.

Furniture Paste.

Turpentine, 1 pt.; alkanet root, $\frac{1}{2}$ oz.; digest until sufficiently colored, then add beeswax, scraped small, 4 oz.; put the vessel into hot water, and stir till dissolved. If wanted pale, the alkanet root should be omitted.

Another.—(White).—White wax, 1 lb.; liquor of potassa, $\frac{1}{2}$ gal.; boil to a proper consistence.

Another.—Beeswax, 1 lb.; soap, $\frac{1}{4}$ lb.; pearl ash, 3 oz. (dissolved in water, $\frac{1}{2}$ gal., and strained); boil as last.

Another.—Yellow wax, 16 parts; resin, 1 part; alkanet root, 1 part; turpentine, 6 parts; linseed-oil, 6 parts. First steep the alkanet in the oil with heat, and, when well colored, pour off the clear on the other ingredients, and again heat till all are dissolved.

Furniture—Varnished.

This may be finished so as to look equal to the best French polished wood, in the following manner: Take two ounces of tripoli, powdered; put it into an earthen pot, with just enough water to cover it; then take a piece of white flannel, lay it over a piece of cork or rubber, and proceed to polish the varnish, always wetting it with the tripoli water. It will be known when the process is finished by wiping a part of the work with a sponge, and observing whether there is a fair, even gloss. When this is the case, take a bit of mutton suet and fine flour, and clean the work. The above process is suitable to other varnished surfaces.

Furs—How to Select.

In purchasing furs a sure test of what dealers call a "prime" fur is the

length and density of the down next the skin; this can be readily determined by blowing a brisk current of air from the mouth against the set of fur. If the fibers open readily, exposing the skin to the view, reject the article; but if the down is so dense that the breath cannot penetrate it, or at most shows but a small portion of the skin, the article may be accepted.

Furs—Care of.

In the month of April or May, beat your fur garments well with a small cane or elastic stick, then wrap them up in linen, without pressing the fur too hard, and put between the folds some camphor in small lumps; then put your furs in this state in boxes well closed. When the furs are wanted for use, beat them well as before, and expose them for twenty-four hours to the air, which will take away the smell of the camphor. If the fur has long hair, as bear or fox, add to the camphor an equal quantity of black pepper in powder.

Furs—To Clean.

Strip the fur articles of their stuffing and binding, and lay them as much as possible in a flat position. They must then be subjected to a very brisk brushing, with a stiff clothes-brush; after this any moth-eaten parts must be cut out, and be neatly replaced by new bits of fur to match. Sable, chinchilla, squirrel, fitch, etc., should be treated as follows: warm a quantity of new bran in a pan, taking care that it does not burn, to prevent which it must be actively stirred. When well warmed, rub it thoroughly into the fur with the hand. Repeat this two or three times; then shake the fur, and give it another sharp brushing until free from dust. White furs, ermine, etc., may be cleaned as follows: Lay the fur on the table, and rub it well with bran made moist with warm water; rub until quite dry, and afterward with dry bran. The wet

bran should be put on with flannel, and the dry with a piece of book-muslin. The light furs, in addition to the above, should be well rubbed with magnesia, or a piece of book-muslin, after the bran process. Furs are usually much improved by stretching, which may be managed as follows: to a pint of soft water add three ounces of salt; dissolve; with this solution sponge the inside of the skin (taking care not to wet the fur), until it becomes thoroughly saturated; then lay it carefully on a board with the fur side downward, in its natural disposition; then stretch, as much as it will bear, to the required shape, and fasten with small tacks. The drying may be quickened, by placing the skin a little distance from the fire.

Furs—Domestic Manufacture of.

The skins of raccoons, minks, muskrats, rabbits, foxes, deer, cats, dogs, woodchucks and skunks are all valuable. Handsome robes may be made from the skins of the last two animals and the writer has seen fur coats made from the skins of woodchucks, well tanned, dyed and trimmed, which were elegant as well as comfortable, and no one but a connoisseur would be able to guess their origin.* Of the finer and nicer furs, beautiful collars, muffs, cuffs, caps, gloves and trimmings may be made, with a little ingenuity and perseverance; and who would not feel a greater satisfaction in wearing a nice article, from the fact that it was something of his own manufacture, a product of his own taste and genius?

Handsome Floor Mats.—Very handsome floor mats are made by tanning sheep pelts, and dyeing them some bright color, which is done with very little trouble, the art of dyeing is now so familiar to almost every household. Furs may be dyed as easily as woolen goods, notwithstanding the impression

that it is an art known only to the trade. Any dye that will color woolens will also dye furs, only care must be taken not to have the dye too hot or the texture of the skin will be injured. (See Dyes.)

Mode of Tanning.—The mode of tanning usually followed by city furriers is to rub the skins well with rancid butter, then tread them thoroughly in a tub or vat, after which a large quantity of sawdust is mixed with them, and the process of treading continued until all the grease is absorbed, when they are finished off by beating, working and rubbing with chalk and potter's clay, whipping and brushing. An old trapper practiced this method with small skins, first washing with a suds of soap and sal-soda to free them from grease, then rinsing in clear water to cleanse them from the suds, then rubbing as dry as possible, after which they were put into a mixture of two ounces of salt to a quart of water, added to three quarts of milk or bran water containing one ounce of best sulphuric acid, and stirred briskly for forty or fifty minutes; from this they are taken dripping into a strong solution of sal-soda and stirred till they will no longer foam; they are then hung to dry, when they are very soft and pliable.

Simple Process.—A very good and simple process in use among farmers is to sprinkle the flesh side, after scraping it well, with equal parts of pulverized alum and salt, or washing it well with a strong solution of the same, then folding the flesh side together, and rolling it compactly; in which state it should remain for eight or ten days; then it is opened, sprinkled with bran or sawdust to absorb the moisture, and rolled up again, and after remaining 24 hours, the process is completed by a thorough rubbing and manipulation, on which the pliability depends. Skins, when

taken off, should be freed from grease or flesh, by thorough scraping, when they may be dried, and left to await the leisure of the owner. Previous to tanning they must be well soaked and wrung dry.

It is no extravagance to assert that every farmer's family may furnish their own fur collars, gloves, robes and

other articles of dress and ornament, with trifling expense from the resources within their own reach; but from want of more knowledge on the subject, valuable skins are wasted or disposed of for a mere fraction of their real value, and articles of apparel that should have been made from them are bought at extravagant prices from fur dealers.

G

Gallein—A Dye.

The crystals of gallein are first produced, and these are converted into gallin by means of zinc and dilute sulphuric acid. On subsequently treating the gallin with concentrated sulphuric acid at 200 degrees C., a substance named cörulein is obtained. This dissolved in aniline forms a rich indigo blue, and with alkalies it gives a fine green, while, if mordanted with iron compounds, a fine brown is imparted to the goods. These colors are readily imparted to cloth, and are of considerable permanence, resisting the action of soap.

Galvanizing Gray Iron Castings.

Cleanse the articles in an ordinary chafing mill, which consists of a barrel revolving on its axis; when the sand is all removed take them out and heat one by one, plunging while hot in a liquid composed as follows: 10 pounds of hydrochloric acid, sheet zinc, q. s. to make a saturated solution. In making this solution, when the evolution of gas has ceased, add muriate, or preferably sulphate of ammonia, 1 pound, and let it stand until dissolved. The castings should be so hot that when dipped into this solution, and instantly removed, they will immediately dry, leaving the surface crystallized like frost-work on a window pane. Next, plunge them while hot, but perfectly dry, into a bath

of melted zinc, previously skimming the oxide on the surface away, and throwing thereon a small amount of powdered sal ammoniac. If the articles are very small, inclose them in a wrought iron basket on a pole, and lower them into the metal. When this is done, shake off the superfluous metal, and cast them into a vessel of water to prevent them from adhering together when the zinc upon the surface solidifies.

Gapes—In Chickens.

This destructive disease is believed to be infectious and epidemic. Unless perhaps thus communicated by others, it never occurs except there has been foul water, exposure to wet, and want of nourishing food. The disease consists—at least so far as actual symptoms extend—in a number of small worms which infest the windpipe, and cause the poor chicken to gasp for breath. If taken early, it will be sufficient to give, every day, a morsel of camphor the size of a grain of wheat, and to put camphor in the drinking water; or a little turpentine may be given daily in meal, taking care, of course, that the deficiencies in diet and shelter be also amended. In fully developed cases, the worms must be removed by introducing a loop of horse-hair into the trachea, and turning round during withdrawal—the ope-

ration to be repeated several times, till all the worms appear to be extracted. A feather, stripped almost up to the top, may be used instead of the horse-hair. Crumbs of dough impregnated with soft soap, given once or twice, is also said to cure.

Gardening.

The important points are—(1) Situation, which should be sloping gently to south; (2) soil, which should be a loam just rich enough not to prevent water filtering through properly; (3) watering, which must be done regularly with water that has been exposed to the air for some time after being pumped; (4) digging, which must be done deep with a spade; (5) weeding, which should be done by hand as well as with the hoe as soon as the weeds appear; (6) raking, which should be done very lightly, but constantly, to allow dew, etc., to sink easily into the soil; (7) paths, which should be made of gravel.

Gardening—Window.

Soil.—The first point is good soil—without this no plant can thrive well. Fresh sandy loam, with a third of well rotted manure, will do for many plants. Keep a reserve stock of soil in a heap, and turn it over occasionally, then it will be ready for use. In potting, press the soil well down in the pot, and never use wet soil for this purpose on any consideration, or disappointment will be your inevitable reward. See that the pot used is not too hard burned, as in that case it becomes almost non-porous and unfit for plant culture.

Heat.—Most plants will survive if the temperature gets below 40 degrees; but no healthy growth or bloom can be looked for at a lower average daily temperature than 60 or 65 degrees; it is better that the night temperature should fall 15

degrees less than this. One difficulty with plants in our dwellings is that they are as warm at night as during the day.

Water.—Give water only when the plants need it. A plant with its roots constantly in mud cannot thrive. It is better to wait until the flagging of a plant shows that it needs water than to keep it constantly soaked. Sprinkling or showering should be done as often as possible. Take the plants to a sink or a bathtub and give them a good dousing.

Air.—Do not be afraid of opening the windows whenever the outside air is not freezing. Give air every day when it is safe to do so. Not only will the plants be benefited, but the atmosphere will be better for human beings. Dust is a great obstacle to the growth of plants in the house. The showering we have recommended will help to remove it; but all the smooth-leaved plants, such as camellias, ivies, and the like, should be occasionally sponged to keep the foliage clean and healthy.

Insects.—Don't have any. If the plants are daily looked over, and the thumb and finger properly applied, they will be kept in check. If a plant is badly infested by the green fly, put it in a box or under a barrel and smoke it thoroughly. If the red spider appears, as it will be apt to do in hot and dry rooms, smoke will not help it. Remove the plant into hospital and shower it daily. Frequent wetting and a moist atmosphere are the best remedies.

Gas—Hints on the Use of.

When gas is used in a house, it is very important to have all the pipes tested, in order to see if there is any leakage.

Before turning off the gas at the main at night, it should be seen that each light has previously been

turned off, as otherwise when the gas is again turned on at the main, it will escape from the unturned taps, often to a dangerous extent.

Don't look for an escape of gas with a light! Go without a light, and open the doors and windows for a quarter of an hour before bringing a flame near.

Sometimes a small leak makes itself evident, and there may not be a gas-fitter available. Get a piece of yellow soap and rub it on the place of escape. This will do until you can replace the soap with some white lead and oil.

Some gasaliers have a sliding tube, and where this is the case the gas sometimes escapes. This is remedied by slowly pouring a small quantity of water down the tube.

If the gas in burning makes a hissing sound, it shows that it is turned on too fully at the main, and means so much unconsumed gas to be paid for.

To avoid waste, turn the gas partly off at the meter; much gas is burned to waste by too great pressure in certain localities. In buildings of any size a good regulator will soon pay for itself.

Gas Burners.

The following are those in common use:

Batswing.—This has a single slit at the top of the burner. It is very steady; does not change its form under any pressure. It is not, however, economical.

Fish-tail.—This form is generally used in houses; it has two openings in the top, from which the jets of gas issue and form a flat flame, the plane of which is at right angles to that of the openings. When the pressure is too great the flame elongates and sings, thus calling attention to the waste. It is an economical burner, but flickers. This unsteadiness

is trying to the eyes, and the fish-tail should never be used to read or write by.

Argand.—These are steady, but require a chimney. The gas is allowed to escape by a ring of holes, and the air is admitted both inside and outside of this ring. In the patent Argand the outer ring of air passes through a series of small openings, and the inner ring is deflected into the flame by a button; it requires a swelled chimney. By cutting off the button a steadier light is obtained, and the economy is nearly the same; straight chimneys are more easily obtained than the others. The best flint-glass chimneys are in the end the cheapest; great loss of light ensues if they are not kept clean. But putting a chimney into hydrant-water, and gradually heating it, it may be cleaned safely; paper gives the best finish. The larger the burner the greater the relative economy.

Gas Mantle Burners.

Mantle burners are those that have a mantle or hood over the flame which is usually round, as in the Argand burners. The mantle is made of carbon and when the flame is lighted it instantly becomes incandescent. The light from these burners is intensely white and dazzling. It makes an ordinary incandescent electric light in the same room look pale and yellow. Of course the use of these mantle lights is economical because one burner with a mantle takes the place of three or four burners of the above kinds. Be very careful with your mantle burners because the mantle or hood is nothing more than an ash and is therefore very fragile. Be careful also in the regulation of the air-draft under the flame, for if you don't, black spots, indicating a smoky flame, will appear on the surface of

the mantle. To remove these black spots drop a little table salt on the mantle while the flame is burning. These burners are best for stores, public-halls, street lamps, and such places; they are too strong for an ordinary reading light unless subdued by ground glass or colored shade, and the eyes are shaded.

Gas—To Clean Globes.

These should be scrubbed with a nail brush, curd soap, soda, and water. Rinse them in warm water, and let them drain without wiping them. They should not be touched till quite dry on the outside. Then lift them with a soft towel and wipe the insides dry. If the outsides are wiped, they will be smeared.

Gas (Laughing)—To Make.

Heat gently in a flask or retort, nitrate of ammonia (made by adding carbonate of ammonia to nitric acid until no more gas comes off). It should be allowed to stand some time over water before being breathed.

Gas Taps—To Stop the Leakage of.

Many people are annoyed by the slight leakage of taps, causing offensive odor deleterious to health in the apartments where they are placed, and also increasing their bills. In many cases they may easily remedy the evil without sending for a plumber or gas-fitter. To do this they should turn off the gas back of the meter; then take out (a screw driver is all the tool required) the plug. Next light a wax, sperm, or paraffine candle, and drop the melted wax, sperm, or paraffine upon the surface of the plug, till it is covered with a thin layer. Next, screw in the tap, and in nine cases out of ten the leak will be stopped, and remain stopped.

Gas Meter—To Read.

The figures on the index at the right hand denote even hundreds. When the hand completes the entire circle it denotes ten hundred, and is registered by the hand in the centre circle, pointing to one—each figure in the centre circle being a thousand—this entire circle being ten thousand; and is registered on the index of the left hand circle by the hand, there denoting by each figure, ten thousand.

The quantity of gas which passes through the meter, is ascertained by reading from the index at the time the amount is required to be known, and deducting therefrom the quantity shown by the index at a previous observation.

If the whole registered by the hands on three circles indicates	49,900
Amount at previous observation	42,500

Shows amount which passed through since last taken off. . 7,400

The register at all times shows the quantity that has passed through since the meter was first set; by deducting from it the amount that has been paid for (without any regard to the time when), it shows the difference that remains unpaid.

Gas-light Pictures.

Cut all the white paper close up to the engraving, and place the engraving on the glass, like the Antique Painting, then paint a wreath around the engraving, on the glass, oval shape or round. Make a back-ground by painting the back board with white paint, and before it dries take white or blue frosting, a pinch at a time, with the fingers and scatter thickly all over the painted board. When the board is dry, shake off what frosting

there is that does not adhere, and save it for the next time. A sufficient quantity will adhere to present the appearance of myriads of diamonds, and is very effective, especially by gas-light. In putting the back board on the picture in this style, put paste-board strips or thin wood between the glass and the back to keep the glass from mashing down the frosting.

Geese.

Geese are not popular in this country. It would be hard to say which is the most popular breed. Both Embdens and Toulouse are bred in considerable numbers, and White China, Brown China, and Egyptian are frequently found; but geese are not bred in large numbers in any part of the country.

Geese—To Manage.

The goose lays from ten to twenty eggs before setting, and when she is well fed and attended to she will lay and hatch three times in a year. She begins to lay early in March, and even toward the end of February. The period of laying may be perceived in the circumstance that the goose at that time carries about straws in its bill, prompted by the development of the maternal instinct to prepare a nest. When this practice is observed it will be found prudent to confine the bird, providing her with a nest for laying and hatching in, which should be made of straw lined with hay, and so formed that the eggs will not readily fall out, especially when the bird turns them. Fifteen eggs will be sufficient to place under even a large bird.

The Period of Incubation is a month, but some of the goslings may be hatched a day or two before this time; it is desirable, however, that all the young birds be hatched about the same time, and to this end as much care as is practicable should be taken to have all the eggs equally fresh.

When the brood are hatched they ought to be turned out into a sunny place, sheltered alike from cold winds and bad weather; but it is not only unnecessary, but prejudicial, to feed them for twelve hours or so. Their earliest food ought to be bread soaked in milk, curds, porridge, boiled greens, boiled potatoes mixed with bran; and such food ought to be given them at a moderate temperature, so as to avoid the entrance of heat or cold, and for a couple of days at least after being hatched, the goslings ought to be not allowed access to cold water, which often gives them cramp.

Confinement.—As a general rule, geese ought to be confined as little as possible. If they are allowed to run about the fields, ditches, and streams of water, they will forage for themselves very successfully. Grass and water are essential to their comfort and well-being, such grass especially as may be found on damp and swampy soil, and which, however rank or coarse it may be, is well adapted to them. In harvest time the stubble-fields are an excellent pasturage for them; they can there pick up no small supply of grain, which would otherwise be lost, and they obtain abundance of young grass and other herbage. The advantages of a stubble-field, however, are not always to be had, but where this is lacking the kitchen garden may be made available. In autumn the geese may be turned into it without the danger of their doing any serious damage; but they ought to be fed occasionally on boiled potatoes, bruised up with bran, or the result of their foraging for themselves will not be productive of any advantage.

Goslings in June and July will fatten without any food beyond what they can gather for themselves in the stubble-fields; but if it be necessary to hasten the process they must be supplied with additional nutriment for

that purpose, such as potatoes and turnips bruised with meal, and they should thus be fed once a day. There are various methods of fattening geese, but the simplest and best is nutritive food in abundance.

Gelatine.

Gelatine is a concrete animal substance, which is soluble in water, but which is not contained in any healthy animal fluid. It exists nearly pure in skin, and also is extracted from tendons, bones, etc., by the action of boiling water. The coarsest forms, from hoofs and hides, make glue; the second quality, from skins, etc., makes size; and the finest quality, from the air-bladders of fish, etc., makes isinglass.

Gems—Poetry of.

Special stones are supposed to have "affinity" for special months, and to have special virtues. The jacinth or the garnet gives constancy, for January; the amethyst gives sincerity, for February; the bloodstone gives courage, for March; the sapphire or the diamond repentance, for April; the emerald successful love, for May; the agate health, for June; the cornelian content, for July; the sardonyx happy marriage, for August; the chrysolite, antidote to madness, for September; the opal that experience of misfortunes which engenders hope, for October; the topaz faithful friendship, for November; the turquoise or the malachite prosperity, for December.

Generations.

A generation is estimated at about thirty years. About twenty lives the length of Mr. Gladstone's would take one back to the time of Christ.

Geraniums—To Preserve During Winter.

Take the plants to be preserved out of their pots, trim off the leaves and outer branches, and then take off all

the soil from the roots, tie them up in bunches, and hang them, roots upward, in a dark, dry cupboard, loft, or cellar, where no frost can touch them. In the spring bring them out, and, having well cleaned your pots inside and out, re-pot them in some good compost.

Gilding.

Gold is employed for gilding the surface of copper, brass and silver by the following different processes:—

Hot Gilding for the ormulu, the bright French gold for ornaments of all kinds; the metal to be gilded is first washed with a solution of nitrate of mercury or amalgamating water, which gives a silvery surface; to this surface an amalgam of gold and mercury is applied, from which the mercury is driven off by heat. The color is then heightened by burning on it Calder's wax, formed of wax, verdigris and blue vitriol; it is then polished and brightened by a boiling solution of common salt and cream of tartar. Some adepts heat the article on a hot iron plate provided with small apertures, and when heated apply some solution of iodine and yellow ochre with a brush.

German Gilding of silver is performed by a solution of gold in nitric acid, to which sal ammoniac and alembroth (a triple salt formed by salt and ammonia and corrosive sublimate) have been added. This solution of gold evaporates to the consistency of oil, and is then applied to the silver or nickel, both of which it blackens, but they appear gilded on being heated.

Gilding is also performed by rubbing the metal with the ashes of linen rags which have been impregnated with a solution of gold.

Wet gilding by merely dipping the work in a solution of gold.

Gilding by the well-known process of electro-plating.

Gilding—Grecian.

Take sal ammoniac and bichloride of mercury, equal parts, dissolve in nitric acid, and make a solution of gold with this fluid, lay it on the silver and expose it to a red heat; it will then be gilded.

Gilding Polished Metals.

Polished iron and steel may be readily gilded by applying an ethereal solution of gold to the surface with a camel's hair pencil. The ether flies off and leaves the surface coated with gold; it must then be polished with a burnisher. In this way, any fancy device or writing may be executed on steel or iron. This species of gilding is not, however, so durable as the following:—

Apply gold leaf to the surface of polished iron, steel, or copper, heated to a bluish tint, press it on gently with a burnisher, avoiding breaking or injuring the gold; again expose it to a gentle heat, and repeat the process with fresh leaves of gold, until the gilding has acquired a proper thickness; then let it cool and polish it with the burnisher.

Gilding Picture Frames.

The surface to be gilded must be carefully covered with a strong size, made by boiling down pieces of white leather, or clippings of parchment, till they are reduced to a strong jelly. This coating being dried eight or ten times, more size must be applied, the size being mixed with a small quantity of whiting. The last coating is composed of size and massicot, or sometimes yellow ochre. Let it dry thoroughly, and then dampen the surface a little at a time with a damp sponge, and apply the gold leaf before this dries. It will immediately adhere, and when dry, those parts which are to be brilliant are to be burnished with an agate or dog's tooth burnisher.

Gilding and Silvering—To Test the Genuineness of.

A solution of chloride of copper is the test for gilding. When the object is only covered with the usual gold-colored alloy, this reagent produces a black spot, which is not seen if the gilding has been done with gold.

Equal parts of bichromate of potash and nitric acid, brought in contact with real silver, will form a red spot, while alloys imitating silver show divers other peculiar colors, or no change whatever.

Take of fine gold five ounces (troy); nitro-muriatic acid, fifty-two ounces; dissolve by heat, and continue the heat until red or yellow vapors are evolved; decant the clear liquid into a proper vessel; add of distilled water, four gallons; pure bicarbonate of potash, twenty pounds; boil for two hours.

Gilding—Out-Doors.

Take unruled writing paper and wax it. First put on the size, and then take the book of leaf, and laying it on any convenient surface, slip the waxed paper into the gold leaf, pressing it down with the hand so as to bring the waxed surface in contact with all parts of the leaf, then withdraw the paper and the leaf will adhere to it. In this way a hurricane may be defied.

Gilding—To Improve.

Mix a gill of water with two ounces of purified nitre, one ounce of alum, one ounce of common salt; lay this over gilt articles with a brush, and the color will be much improved.

Gilding—Burnished.

Coat the wood first with size, and afterwards with size and whiting mixed until a sufficient thickness is obtained. Between each coat, glass or sand-paper must be used to smooth the surface. The gold size is now applied thinly, and when nearly dry the leaf is attached and afterwards burnished.

Gilding on Glass.

Mix powdered gold with thick gum arabic and powdered borax. With this trace the design on the glass, and then bake it in a hot oven. Thus the gum is burnt and the borax is vitrified, at the same time the gold is fixed on the glass. To make powdered gold: Rub down gold leaf with pure honey on a marble slab, wash the mixture, and the "precipitate" is the gold used.

Another—Dissolve in boiled linseed oil an equal weight either of copal or amber, and add as much oil of turpentine as will enable you to apply the compound or size thus formed as thinly as possible to the parts of glass intended to be gilt. The glass is to be placed in a stove, till so warm as almost to burn the fingers when handled. At this temperature the size becomes adhesive, and a piece of leaf gold, applied in the usual way, will immediately stick. Sweep off the superfluous portions of the leaf, and when quite cold it may be burnished. Take care to interpose a piece of Indian paper between the gold and the burnisher.

Gilders' Glue.

A very superior article of the so-called gilder's glue is obtained by cutting rabbit-skins into fine shreds, and boiling in water, then turning the mixture into a basket, through which the liquid passes, leaving the refuse behind. About fifteen hundred grains of sulphate of zinc and three hundred and seventy-five of alum are then to be separately dissolved in pure boiling water, and poured into the first-mentioned liquid, and the whole well stirred together while hot. The mixture is then to be passed through a sieve into a rectangular box, in which the jelly remains twenty-four hours in winter, or about forty-eight in summer. The mass, now having become solid, is to be separated from the box, and cut into slices of proper thickness, and laid upon

nets to dry, either in the open air or by means of some kind of artificial heat.

Gilding—Sizing for.

The best sizing for gilding on glass is made as follows: Put a piece of isinglass as large as an old-fashioned cent into a teacup; fill half full with boiling water. When well mixed, and before cold, fill nearly full with spirits of wine.

Gilt Frames—To Preserve.

These may be protected from flies and dust by pinning tarlatan over them. Tarlatan fit for the purpose may be purchased at a dry-goods store. It is an excellent material for keeping dust from books, vases, wood work, and every description of household ornament.

Gilt Frames—To Restore.

Rub them lightly with a sponge moistened with turpentine.

Gilt Ornaments—To Clean.

The best way to prevent gold and gilt ornaments from tarnishing, and to make them bright, is to keep them in boxwood sawdust, which may be obtained at any ivory turners. To clean them, wash in a lather with a soft brush, rinse, and let them drain on a cloth. When nearly dry, put them into the boxwood sawdust.

Ginger Beer.

The following recipe is taken from the celebrated treatise of Dr. Pereira On Diet. The honey gives the beverage a peculiar softness, and, from not being fermented with yeast, it is less violent in its action when opened, but requires to be kept a somewhat longer time before use. White sugar, five pounds; lemon juice, one quarter of a pint; ginger, bruised, five ounces; water four gallons and a half. Boil the ginger in three quarts of water for half an hour, then add the sugar, lemon juice, and honey, with the remainder of the water, and strain through a cloth;

when cold add a quarter of the white of an egg, and a small teaspoonful of essence of lemon; let the whole stand four days and bottle; it will keep for many months. This quantity will make 100 bottles.

Glass—A Simple Mode of Annealing.

A simple mode of annealing glass has been some time in use by chemists. It consists in immersing the vessel in cold water, gradually heated to the boiling point, and suffered to remain till cold, when it will be fit for use. Should the glass be exposed to a higher temperature than that of boiling water, it will be necessary to immerse it in oil.

Glass—Amalgam for Mirrors.

Lead and tin, of each two ounces; bismuth, two ounces; mercury, four ounces. Add the mercury to the rest in a melted state and remove from the fire; mix well with an iron rod.

This amalgam melts at a low heat, and is employed for silvering the insides of hollow glass vessels, globes, convex mirrors, etc. The glass, being well cleaned, is carefully warmed, and the amalgam, rendered fluid by heat, is then poured in, and the vessel turned round and round, so that the metal may be brought in contact with every part of the glass, which it is desired to cover. At a certain temperature this amalgam readily adheres to glass.

Glass—To Break in any Required Way.

Dip a piece of worsted thread in spirits of turpentine, wrap it round the glass in the direction required to be broken, and then set fire to the thread, or apply a red-hot wire round the glass, and if it does not immediately crack, throw cold water on it while the wire remains hot. By this means glass that is broken may often be fashioned and rendered useful for a variety of purposes.

Another.—Make a small notch by means of a file on the edge of a piece of glass; then make the end of a tobacco pipe, or of a rod of iron of the same size, red hot in the fire; apply the hot iron to the notch, and draw it slowly along the surface of the glass in any direction you please: a crack will follow the direction of the iron.

Glass—Boring Holes in.

Any hard steel tool will cut glass with great facility when kept freely wet with camphor dissolved in turpentine. A drill-bow may be used or even the hand alone. A hole bored may be readily enlarged by a round file. The ragged edges of glass vessels may also be thus easily smoothed by a flat file. Flat window glass can readily be sawed by a watch spring saw by aid of this solution. In short, the most brittle glass can be wrought almost as easily as brass by the use of cutting tools kept constantly moist with camphorized oil of turpentine.

Glass—Cutting.

The cutting of glass, says the Technologist, is an operation so frequently put in practice in the laboratory, that any simple method of effecting it is sure to run the rounds of the press as soon as published. Almost all the methods in common use are very old. Of course, for cutting flat glass, such as window panes, the diamond is the best agent. For cutting rounds or ovals out of flat glass, the diamond is the best tool, and, if the operator has no diamond, it will always pay to carry the job to a glazier, rather than waste time and make a very poor job by other and inferior means. When, however, it is required to cut off a very little from a circle or oval, the diamond is not available, except in very skilful hands. In this case, a pair of pliers, or very dull scissors, is the best tool, and the cutting is best performed under water. A little practice will en-

able the operator to shape a small round or oval, with great rapidity, ease and precision. When bottles or flasks are to be cut, the diamond is still the best tool in skillful hands; but ordinary operators will succeed best with pastiles, or a red hot poker. We prefer the latter, as being the most easily obtained, and the most efficient; and we have never found any difficulty in cutting off broken flasks so as to make dishes, or to carry a cut spirally round a long bottle, so as to cut it in the form of a corkscrew. Glass so cut exhibits considerable elasticity, and the spiral may be elongated like a ringlet. The process is very simple. The line of the cut should be marked by chalk, or by pasting a thin strip of paper alongside of it; then make a file mark to commence the cut; apply the hot iron, and a crack will start; and this crack will follow the iron wherever we choose to lead it.

Drilling Holes in Glass.—A common steel drill, well made and tempered, is the best tool. The steel should be worked at a low temperature, so as to be sure not to burn it, and then tempered as hard as possible, in either mercury or a bath of salt water that has been well boiled. Such a drill will go through glass very rapidly, if kept well moistened. A good liquid for moistening such drills is turpentine in which some camphor has been dissolved. This was the lubricator recommended by Griffin in his work on Chemical Manipulation, and it has been frequently published since. Dilute sulphuric acid is equally good, if not better; and we have found carbolic acid singularly efficient.

Glass-Cleaning.

Glass windows, looking-glasses, etc., may be cleaned as follows:—Dip a moistened rag or flannel into indigo, fuller's earth, ashes, or rotten-stone, in impalpable powder, with which

smear the glass, and wipe it off with a dry soft cloth. Powder-blue or whitening, tied up in muslin and dusted upon the glass, and cleaned off with chamois leather, also gives glass a fine polish. The spots in the silvering of old looking-glasses are caused by damp at the back.

Glass Chimneys—To Prevent Cracking

If the chimney-glass of a lamp be cut with a diamond on the convex side, it will never crack, as the incision affords room for the expansion produced by the heat, and the glass, after it is cool, returns to its original shape, with only a scratch visible where the cut is made.

Glass—Drawing On.

Grind lampblack with gum-water and some common salt. With a pen or hair-pencil, draw the design on the glass, and afterwards shade and paint as already given elsewhere.

Glass—To Etch Upon.

Procure several thick, clear pieces of crown glass, and immerse them in melted wax, so that each may receive a complete coating, or pour over them a solution of wax in benzine. When perfectly cold draw on them, with a fine steel point, flowers, trees, houses, portraits, etc. Whatever parts of the drawing are intended to be corroded with the acid should be perfectly free from the least particle of wax. When all these drawings are finished the pieces of glass must be immersed one by one in a square leaden box or receiver, where they are to be submitted to the action of hydrofluoric acid gas, made by acting on powdered fluor-spar by concentrated sulphuric acid.

When the glasses are sufficiently corroded they are to be taken out, and the wax is to be removed by first dipping them in warm and then in hot water, or by washing with turpentine or benzine. Various colors may be applied

to the corroded parts of the glass, whereby a very fine painting may be executed. In the same manner sentences and initials of names may be etched on wine-glasses, tumblers, etc.

Glass Globes—To Clean.

If the globes are much stained by smoke, soak them in tolerably hot water with a little washing soda dissolved in it, and put a teaspoonful of ammonia powdered into a pan of lukewarm water, and with a tolerably hard brush wash the globes till the smoke stain disappears; rinse in clean cold water, and let them drain till dry; they will be quite as white and clear as new globes.

Glass Globes—To Silver.

Take equal parts of tin and lead, and melt them together; add while they are still in fusion two parts of bismuth and two parts of mercury. Take from the fire, and so soon as cool enough for the glass to bear it, pour into the globe and move slowly so that the amalgam will pass over every part of its interior. A thin film will be left at every point of contact.

Glass (Ground)—Imitated.

The frosted appearance of ground glass may be very nearly imitated by gently dabbing the glass over with a paint brush dipped in white paint or any other oil color. The paint should be thin, and but very little color taken up at one time on the end of the bristles. When applied with a light and even touch the resemblance is considerable.

Glass or China—To Pack.

Procure some soft straw or hay to pack them in, and if they are to be sent a long way, and are heavy, the hay or straw should be a little damp, which will prevent them slipping about. Let the largest and heaviest things be always put undermost, in the box or hamper. Let there be plenty

of straw, and pack the articles in quite tight; but never attempt to pack up glass or china which is of much value, till it has been seen done by some one used to the job. The expense will be but trifling to have a person to do it who understands it, and the loss may be great if articles of much value are packed up in an improper manner.

Glass—To Platinize.

Pour rosemary oil upon the dry chloride of platinum in a porcelain dish, and knead it well until all parts are moistened; then rub this up with five times its weight of lavender oil, and leave the liquid a short time to clarify. The objects to be platinized are to be thinly coated with the above preparation and afterwards heated for a few minutes in a muffle or over a Bunsen burner.

Glass—To Write or Draw on.

The process of writing or drawing on glass can be done by procuring some French chalk; place the glass on a table, and while breathing on it, write with the chalk, after that wipe it with a damp cloth; when dry the drawing will disappear; breathe on it again and it will return.

Glass—To Wash.

Should be washed in cold water, which gives it a brighter and clearer look than when cleansed with warm water; or, what is better, wash in warm water and rinse in cold water.

Glass vessels and other utensils, may be purified and cleaned by rinsing them out with powdered charcoal.

Glass Stopper (Ground)—To

Loosen.

Hold the hand around the neck of the bottle, 10 or 15 seconds, until its warmth expands the glass of the bottle—when the stopper will move easily. If it does not, try a higher

heat by the aid of a rag dipped in hot water and wrapped around the neck of the bottle for a minute or so. Another way is to hold the neck of the bottle, cautiously turning it, so as not to expose any part to much or too sudden a heat, near or over a gas jet or heat from a lamp.

Another Way of Loosening a Stopper.

With a feather rub a drop or two of salad oil round the stopper, close to the mouth of the bottle or decanter, which must then be placed before the fire, at the distance of about eighteen inches; the heat will cause the oil to insinuate itself between the stopper and the neck. When the bottle has grown warm, gently strike the stopper on one side, and then to the other, with any light wooden instrument; they try it with the hand: if it will not yet move, place it again before the fire, adding another drop of oil. After a while strike again as before; and, by persevering in this process, however tightly it may be fastened in, you will at length succeed in loosening it.

Glass—Transferring to.

Colored or plain engravings, photographs, lithographs, water colors, oil colors, crayons, steel plates, newspaper cuts, mezzotints, pencil writing, show cards, labels—or, in fact, anything.

Directions.—Take glass that is perfectly clear—window glass will answer; clean it thoroughly; then varnish it, taking care to have it perfectly smooth; place it where it will be entirely free from dust and let it stand over night; then take your engraving, lay it in clear water until it is wet through (say ten or fifteen minutes); then lay it upon a newspaper that the moisture may dry from the surface and still keep the other side damp. Immediately varnish your glass the second time; then place your

engraving on it, pressing it down firmly, so as to exclude every particle of air; next rub the paper from the back until it is of uniform thickness—so thin that you can see through it; then varnish it the third time and let it dry.

Materials Used for the Above Art.—

Take two ounces balsam of fir to one ounce of spirits of turpentine; apply with a camel's-hair brush.

Glass—To Stain, or Diaphanie.

This is a process by means of which colored designs may be transferred from the paper on which they are originally printed, for the decoration in colors of glass which is intended to admit light. It is, in fact, a method of glass-staining which costs only a fraction of the expense of the ancient process, produces quite as bold and brilliant effects, is sufficiently durable for all ordinary purposes, and can be practiced by amateurs of either sex at their own homes. That diaphanie fully answers the purpose for which it is mainly intended—the staining of glass—is abundantly proven by the fact that many church windows are colored by means of it, and that they are esteemed quite as telling and beautiful specimens of decoration as those that owe their origin to the old and expensive art. For ordinary purposes the process may be described in a few words. In the first place, designs must be obtained, and these can be got in every variety, and suitable for any size of window or pane. First, wet the back, or the uncolored side, with a sponge and cold water, and apply a coating of prepared transferring varnish to the colored surface with a wide camel's-hair brush. Then at once apply the cemented side to the glass in the proper position, and press down with a roller. To insure success, two or three sheets of paper should be laid upon the back of the design before

the using of the roller is commenced; then begin rolling from the center outward to the circumference. The work is now to be left until the varnish has become perfectly dry, which it will be in two days. The design has by this time become printed on the glass, and the next step is to remove the paper from which the design has been transferred. This is done by wetting and gently rubbing with a cloth or sponge. When the paper has been wholly removed, a thin coating of "clearing liquid" is applied to the design, and when this has become perfectly dry, one or two coatings of the "washable varnish" are laid on, and the work is finished. (See Varnishes.)

No special knowledge of art is required for the practice of diaphanie. The work is especially suitable for hall and lobby doors and windows, for school and church windows, staircase, study, and other windows in houses where it may be desirable to shut out the prospect of a smoke-dried back yard, or an alley. The special advantage of diaphanie is that while imparting a graceful and artistic character wherever used, it does not exclude the light, and it renders blinds unnecessary.

It should be specially kept in view that the designs must be transferred before the glass is fitted to the window, and that the colored side is kept inwards. The glass may be cleaned in the usual manner, if ordinary care be taken, as the coatings of "washable varnish" are quite a sufficient protection to the picture.

Glassware (New)—To Season.

Put dishes, tumblers, and other glass articles into a kettle; cover them entirely with cold water, and put the kettle where it will soon boil. When it has boiled a few minutes, set it aside, covered close. When the water is cold, take out the glass.

Glazing.

Sashes are primed before glazing. Glass laid in with the crown or convex side out. The tins driven in with a chisel or glazing hammer; four tins to each glass on the two long sides, about one-fourth of the distance from the corners. If tins are put in the center, they are apt to break the glass, especially in cold weather.

Back Puttying.—In good work and medium-sized glass, after the glazing is done and the putty well set, fill the spaces on the inside. Use the putty soft or it will press the glass out.

Bedding for superior work and large glass, is the best. Glaze the rabbet with soft putty, and press the glass down into it as close as it will lay, pressing on the edges and not the middle of the glass, then glaze as usual. Where the moulding of the sash is to go outside, the crown side of the glass should be out also.

Cleaning after the glazing is done with water and a brush, or with whitening and a dry brush. The line of the putty should come just even with the line of the moulding on the other side of the glass.

Gloves—Care of.

Nothing looks worse than shabby gloves; and, as they are expensive articles of dress, they require a little management. A good glove will, with care, out-last three cheap ones. Do not wear your best gloves at night; the heat of the gas, etc., give a moisture to the hands that spoils the gloves; do not wear them in very wet weather, as carrying umbrellas, and drops of rain spoil them.

Gloves (Kid)—To Clean.

Put the gloves on your hand and wash them, as if you were washing your hands, in some spirits of turpentine, until quite clean; then hang them up in a warm place, or where there is a

current of air, and all smell of the turpentine will be removed.

Another Mode.—To clean kid gloves. have ready a little new milk in one saucer, a piece of white soap in another, and a clean cloth folded two or three times. On the cloth spread out the glove, smooth and neat. Take a piece of flannel, dip it in the milk, then rub off a good quantity of soap on the wetted flannel, and commence to rub the glove toward the fingers, holding it firmly with the left hand. Continue this process until the glove, if white, looks of a dingy yellow, though clean; if colored, till it looks dry and spoiled. Lay it to dry, and the operator will soon be gratified to see that the old glove looks nearly new. It will be soft, glossy, smooth, and elastic.

Another.—Wrap a fine cloth around your finger, dip it in new milk, and then rub on fine soap and rub the glove lightly. In all the above operation the glove must be on the hand.

Another.—Take fine curd soap, one pound, scrape it into a powder, put it into a jar, and pour upon it from time to time, sufficient strong alcohol to make it into a thick jelly; add one teaspoonful of ether on one half teaspoonful liquor potassæ; mix and put into bottles well corked. To use, put the gloves on the hands, rub on the preparation with a piece of flannel, when the dirt will disappear.

Another.—It is well known that common benzine is the best substance to take the greasy dirt out of leather gloves, as it does not attack the leather like most of the other substances sometimes used for that purpose. Those who make it a profession to clean gloves put them all together in a large, wide-mouthed jar with glass stopper, until it is about half full, cover the gloves with benzine, close the stopper and shake the whole several times, letting it rest alternately. The

gloves are then taken out, one by one and examined. If any dirt spots have remained, they are rubbed out with benzine; the glove is then wrung out and hung up to dry. If such gloves were, however, to be worn after simply air drying, the higher temperature of the hand would cause the evaporation, with an unpleasant odor of the benzine which, at the lower temperature was left behind. Hence they are dried at a temperature of some 200° between plates heated with boiling water, which removes all traces of benzine, and consequent odor.

The benzine remaining in the bottle after having been used a few times becomes dirty; but as benzine is so cheap as to make it not worth while to recover it by redistillation, when thus soiled, all glove cleaners throw it away.

Gloves, White Leather—To Clean.

White leather gloves may be cleaned to look very well, by putting on one at a time, and going over them thoroughly with a shaving brush and lather. Then wipe them off with a clean handkerchief or sponge, and dry them on the hands by the fire, or in the sun.

Gloves (Kid)—To Color.

Put one half ounce extract of logwood into a two ounce phial, and fill up with good brandy. This dye will keep for years if well corked. Put the gloves on the hand, and with a small swab (a piece of sponge tied to a stick is best), apply the dye evenly all over them. Then rub the one hand with the other, smoothly and firmly, until the gloves are dry—a few minutes only, as the spirit soon evaporates. More logwood gives a nearly black color; less produces a delicate lilac.

Another.—Dissolve India ink in water, and apply with a camel's hair brush. A fine brown may be obtained by rubbing lightly with a strong decoction of tea.

Glue—How to Use It.

To do good gluing, the work must be well fitted, the parts to be glued well warmed, and the glue well cooked and brought to the proper consistency. Having clamps, hand-screws, etc., ready, after applying the glue put together immediately, bringing the parts firmly together, leaving no body of glue between. Finally, use only the best glue.

(See also Cements.)

Glue—Cement.

Take of ising'ass and parchment size, each one ounce; sugar candy and gum tragacanth, each two drachms; add to them one ounce of water, and boil the whole together till the solution appears (when cold) of the consistency of glue; then pour it into any form you please. If this glue be wet with the tongue, and rubbed on the edges of the paper, silk, or leather that are to be cemented, they will, being laid together, pressed slightly, and suffered to dry, be as firmly united as other parts of the substance.

Glue—Flexible.

A German chemist has discovered that if glue or gelatine be incorporated with about one-fourth its weight of glycerine, it loses its brittleness, and becomes useful for many purposes for which it is otherwise unfit such as dressing leather, giving elasticity to porcelain, parchment, or enameled paper, and for bookbinding.

Glue—Liquid.

Formula 1.—Dissolve bruised orange shellac in $\frac{3}{4}$ of its weight of rectified spirit, or of rectified wood naphtha, by a gentle heat. It is very useful as a general cement and substitute for glue.

Formula 2.—Another kind may be made by dissolving 1 oz. of borax in 12 oz. of soft water, adding 2 oz. of bruised shellac, and boiling till dissolved, stirring it constantly.

Formula 3.—Dissolve 1,000 parts of glue in 1,000 parts, by weight, of water, in a glazed pot over a gentle fire. When it is melted, add nitric acid (sp. gr. 1.32) 200 parts, pouring it in very gradually. An effervescence is caused by the escape of hyponitrous acid. When all the acid is added, allow the solution to cool.

Formula 4.—Dissolve 1 part of powdered alum in 120 parts of water; add 120 parts of glue, 10 of acetic acid, and 40 of alcohol, and digest. Prepared glue is made by dissolving common glue in warm water, and then adding acetic acid (strong vinegar) to keep it. Dissolve one pound of best glue in one and one half pints of water, and add one pint of vinegar. It is ready for use.

Glue (Liquid)—For Labeling upon Tin.

Boiling water, 1 quart; borax, pulverized, 2 oz.; put in the borax; then add gum shellac, 4 oz., and boil until dissolved.

Glue—Marine.

Mix together gum sandarac, $\frac{1}{4}$ lb.; gum mastic, $\frac{1}{4}$ lb., and methylated spirit, 8 lbs. When the gums are dissolved, add $\frac{3}{4}$ lb. turpentine, and incorporate this with a thick, hot solution of the best glue (to which a little isinglass has been added to clarify it), and filter through muslin. The marine glue will be impervious to moisture, and will not soften in any ordinarily hot weather.

Glue—Parchment.

Parchment shavings, one pound; water, six quarts. Boil until dissolved, then strain and evaporate slowly to the proper consistency. Use a water-bath if you want it very light colored.

Glue — Portable, for Draughtsmen, Etc.

Gluc, 5 parts; sugar, 2 parts; water,

8 parts. Melt in a water-bath, and cast it in moulds. For use, dissolve in warm water.

Glue—Spaulding's.

First soak in cold water all the glue you wish to make at one time, using only glass, earthen or porcelain dishes; then by gentle heat dissolve the glue in the same water, and pour in a little nitric acid, sufficient to give the glue a sour taste, like vinegar, or one ounce to each pound of glue.

Glue—Water-proof.

One ounce of gum sandarac and one ounce of mastie are to be dissolved together in a pint of alcohol, to which one ounce of white turpentine is to be added. At the same time a very thick glue is to be kept ready, mixed with a little isinglass. The solution of the resins in alcohol is to be heated to boiling in a glue pot, and the glue added gradually with constant stirring, so as to render the whole mass homogeneous. After the solution is strained through a cloth, it is ready for use, and is to be applied hot. It dries quickly and becomes very hard, and surfaces of wood united by it do not separate when immersed in water.

Gold—To Make of Four Carats.

Four carat gold is used to a considerable extent for cheap rings, pin-tongues and the like. It is a very nice metal, wears well, does not black the finger, and presents somewhat the appearance of Guinea gold. You make it by melting together eighteen parts copper, four parts gold, and two parts silver.

Gold—To Make of Twelve Carats.

Melt together, in the usual way, twenty-five grains gold—if coin—thirteen and a half grains copper, and

seven and a third grains silver. This is a very good gold for rings, etc.—stands acids almost equal to the higher grades, and looks fully as well. Of course it is deficient in weight.

Gold—To Make of Sixteen Carats.

Compound sixteen grains pure gold with five and a half grains pure silver. Or, if gold coin is used, seventeen grains gold, five grains copper and two grains silver.

Gold—To Make of Eighteen Carats.

To make the eighteen-carat gold, generally in use, melt together as above, eighteen grains pure gold, four grains pure copper and two grains pure silver. In cases where you find it necessary to use gold coin, weigh out in the proportion of nineteen and a half grains gold, three grains copper, and one and a half grains silver.

Gold Amalgam—To Make.

Eight parts of gold and one of mercury are formed into an amalgam for plating, by rendering the gold into thin plates, making it red hot, and then putting it into the mercury while the latter is also heated to ebullition. The gold immediately disappears in combination with the mercury, after which, the mixture may be turned into water to cool. It is then ready for use.

Gold Amalgam—To Plate with.

Gold amalgam is chiefly used as a plating for silver, copper or brass. The article to be plated is washed over with diluted nitric acid or potash lye and prepared chalk, to remove any tarnish or rust that might prevent the amalgam from adhering. After having been polished perfectly bright the amalgam is applied as evenly as possible, usually with a fine scratch brush. It is then set upon a grate over a charcoal fire, or placed in an oven

and heated to that degree at which mercury sublimes. The gold, when the mercury has evaporated, presents a dull yellow color. Cover it with a coating of pulverized nitre and alum in equal parts, mixed to a paste with water, and heat again till it is thoroughly melted, then plunge into water. Burnish up with a steel or bloodstone burnisher.

Gold Articles—Polishing Powder for.

Dr. W. Hofmann has analyzed a polishing powder sold by gold workers in Germany, which always commands a very high price, and hence, it may be inferred, is well adapted for the purpose. He found it to be a very simple composition, being a mixture of about seventy per cent. of sesquioxide of iron, and thirty per cent. of sal ammoniac. To prepare it, protochloride of iron, prepared by dissolving iron in hydrochloric acid, is treated with liquid ammonia until a precipitate is no longer formed. The precipitate is collected on a filter, and without washing, is dried at such a temperature that the adhering sal ammoniac shall not be volatilized. The peroxide of iron precipitate at first becomes charged with sesquioxide.

Gold—Artificial.

An American has discovered a beautiful alloy, which has been most successfully applied as a substitute for gold; it is composed of pure copper, 100 parts; pure tin, 17 parts; magnesia, 6 parts; tartar of commerce, 9 parts; sal ammoniac, 3.6 parts; and quicklime, 1.6 part. The copper is first melted, then the lime, magnesia, sal ammoniac and tartar are added, little at a time, and the whole is briskly stirred for about half an hour, so as to mix thoroughly, after which the tin is thrown on the surface in small grains;

stirring until entirely fused. The crucible is now covered, and the fusion kept up for about thirty-five minutes, when the dross is skimmed off, and the alloy found ready for use. It is quite malleable and ductile, and may be drawn, stamped, chased, beaten into powder, or into leaves like gold leaf. In all of these conditions it is not distinguishable from gold even by good judges, except by its inferior weight.

Gold—To Clean.

Powder some whiting and make it into a moist paste with some sal volatile. Cover over the gold ornaments and surface with a soft brush, let it dry, and then brush it off with a moderately hard brush.

Gold Chain—To Clean.

Put it in a small glass bottle, with warm soapsuds and a little prepared chalk; shake it well, rinse in clear, cold water, and wipe on a towel.

Gold—Coloring.

Gold is colored by two processes, called the dry and wet color; but the materials used in both cases are the same. They are as follows:—One part salt, one part alum, and two parts saltpetre; each material to be pounded separately in a mortar, taking care they are perfectly clean (this is the dry process). After being well pounded they are put into an iron color-pot and slowly heated over a fire. The color must boil gradually, and must be stirred with an iron rod. It will then rise, and then it is ready for the reception of the articles to be colored, which must not be less than eighteen carat. They are suspended in the color by eighteen carat wire, and kept in motion till the liquid begins to sink, then they are taken out and dipped in aquafortis pickle. The color will rise again, and then another dip—sometimes two—is necessary to give them the proper color. The wet color process is a

much inferior method, except for gold of lower standard, and then not below fifteen carats, as the alloy would suffer so seriously from the coloring. The fact is, coloring is no more than taking from the surface the inferior metals, leaving a thin coating of pure gold.

Gold—Counterfeit.

Fuse together with saltpetre, sal ammoniac and powdered charcoal, four parts platinum, two and one-half parts pure copper, one part pure zinc, two parts black tin and one and a half parts pure lead.

Another good recipe calls for two parts platinum, one part silver and three parts copper.

A metal compounded in accordance with either formula as exhibited above will so nearly resemble gold as to almost defy detection without a resort to thorough tests. The platinum requires a high temperature to melt, but nothing could be substituted that would act so well, as it adds to the ring of the metal, and to a great extent fortifies it against the action of acids.

If at any time you should find your metal too hard or brittle for practical use, re-melt it with sal ammoniac. It may, in some cases, be necessary to repeat this operation several times, but it will be sure to produce the desired effect eventually.

Gold—To Separate from Gilt Copper or Silver.

Take a solution of borax in water, apply to the gilt surface, and sprinkle over it some finely powdered sulphur; make the article red hot and quench it in water, then scrape off the gold and recover it by means of lead.

Gold or Silver—Enamel For.

Take half a pennyweight of silver, two pennyweights and a half of copper, three pennyweights and a half of lead and two pennyweights and a half of muriate of ammonia. Melt to-

gether and pour into a crucible with twice as much pulverized sulphur; the crucible is then to be immediately covered that the sulphur may not take fire, and the mixture is to be calcined over a smelting fire.

Gold—To Gild with upon Silver.

Beat a sheet thin, and dissolve it in two ounces of aqua regia; dip clean rags in it and let them dry; burn the rags, and with the tinder thereof rub the silver with a little spittle; be sure first that the silver be cleansed from grease.

Gold—Imitation.

Four ounces platinum, three ounces silver, one ounce copper.

Another—With 100 parts copper melt six parts magnesia three and one-half parts sal ammoniac, one and eight tenths parts quicklime, and nine parts cream tartar, and, when fusing for some time, add seventeen parts zinc, and stir it quickly.

Another—Sixteen parts copper, seven parts platinum; melt with borax and charcoal and one part zinc added.

Another—Platinum, sixteen parts; copper, seven parts; zinc, one part; put in a crucible, cover with charcoal powder, and melt into a mass.

Gold Lacquer.

Gold Lacquer is made by dissolving gum shellac in alcohol, and coloring it with turmeric or gamboge. It is strained through a cloth before it is used, and generally takes several days to macerate.

Gold—Mosaic.

Copper and zinc, equal parts. Fuse at the lowest possible temperature, and stir well to produce a perfect admixture, then add more zinc until the fused alloy becomes perfectly white; lastly, pour it into moulds. The proportion of zinc to the copper is from fifty to fifty-five per cent., exclusive of what is lost by the heat employed.

Gold—Oreide.

The best article is made by compounding four parts pure copper, one and three fourths parts of pure zinc, one fourth part magnesia, one tenth part sal ammoniac, one twelfth part quicklime, and one part cream tartar. Melt the copper first, then add as rapidly as possible the other articles in the order named.

Gold Powder.

Put some gold-leaf, with a little honey, or thick gum-water made with gum arabic, into an earthen mortar, and pound the mixture till the gold is reduced to very small particles; then wash out the honey or gum repeatedly with warm water, and the gold in powder will be left behind. When dry, it is fit for use.

Gold Plating Solution—To Make and Apply.

Dissolve half an ounce of gold amalgam in one ounce of nitro-muriatic acid. Add two ounces of alcohol, and then, having brightened the article in the usual way, apply the solution with a soft brush. Rinse and dry in sawdust, or with tissue paper, and polish with chamois skin.

Gold Fish—How to Breed.

The following is the experience of a well known naturalist. He says: "In the spring I put into one of my tanks two feet long, one foot wide, and six inches deep, with a rustic basket in the center filled with gravel, and planted with watercresses and other water plants, three gold-fish, two females and one male. Going into the room one day I observed the water, which had always been clear, very muddy. Seeing the water in such a disturbed state, I at once knew that spawning was going on. I looked with a microscope and saw a number of little golden balls sticking on the roots of the cresses. The thought struck

me that, if I removed the ova, I could breed them, as the fish are known to devour their young. I put a handful of gravel and some weeds into a glass sugar-basin. I then, with a pair of tweezers, picked off the roots, with the ova sticking on them, and put them into the basin. In eight days I had a shoal of little fishes."

Gold Fish—Care of.

Gold fish may be kept ten or twelve years in vessels—the average period of existence—by the following precautions:—

Allow not more than one fish to a quart of water.

Use the same kind of water, whether spring or river water, and change it daily in summer; every other day in winter.

Use deep rather than shallow vessels, with small pebbles on the bottom—to be kept clean—and keep them in the shade and in a cool part of the room.

Use a small net rather than the hand while changing the water.

Feed the fish with cracker, yolk of egg, lettuce, flies, etc., rather than with bread, and only every third or fourth day, and but a little at a time.

Do not feed them at all from November to the end of February, and but little during the three following months

Golf.

This is a Scottish game of great antiquity, and is played upon tracts of ground covered with short grass, called "links," "golf course," or "golf green."

A number of small holes are cut in the ground at distances varying from one hundred to five (or even six) hundred yards from one another, according to the extent and character of the course. This is called a circuit, or "round," and a full links usually contains of eighteen holes; but a course very frequently contains fifteen,

twelve, nine, or six holes. The size of the holes as fixed by the laws of golf is four and a quarter inches in diameter and at least four inches deep.

The game is played either by two persons or four (two against two), the two players in the latter case playing alternately.

At various points along the "rounds" "teeing grounds" are marked off, from which the players begin the play to each hole, and at points of 100 to 500 yards from the teeing-grounds, are the "putting-greens" in which the holes are cut into which the ball is to be played.

Flags are set in these holes to indicate their position, and they must be capable of being taken out when the hole is being played for.

There are also various obstructions (either natural or artificial) called "hazards" and "bunkers;" these are generally between the teeing-grounds and putting-greens, and consist of mounds, sandholes, rushes, etc. They are intended as a punishment for badly played balls, and sometimes lie right across the line of play, or in some cases on either side of it.

Mode of Play—Commencing at a few yards in front of the "home hole", on the first teeing-ground, each player drives his ball towards the first hole, his object being to put the ball into the hole in fewer strokes than his opponent.

The ball has to be struck as it happens to lie on the ground, except in playing off from a hole, when it may be teed, i. e. placed on the top of a little heap of sand called a tee. If the two players make an equal number of strokes in holding the ball, the hole is said to be "halved" and there is no score; but if one player holes the ball in fewer strokes than the other, he gains that hole, and has the right of making the first stroke for the next hole, or, as it is termed, takes

"the honor." So the players continue until the entire round has been traversed, the game being won by the player who has taken most holes. It is often agreed that the match shall consist in completing the round in the fewest strokes. The player who is about to make an equal number of strokes with his opponent is said to play the like; if he plays one more stroke than his opponent, he plays the odds, and if two strokes more, two more, and so on.

Implements Required—The balls are made of gutta-percha painted white, in order that they may be easily seen, and they weigh a trifle under two ounces.

The clubs consist of a shaft and head spliced together, made of lance-wood or hickory. The head is weighted with lead, and has a piece of horn fixed to the front of the sole. Sometimes the ball lies in such a position that a club with an iron head has to be used.

The usual number of clubs employed is seven, but some players use ten, or even twelve, and each player has an attendant called a caddie to carry his clubs, and tee the balls for him.

The principal clubs are the Driver, Brassy-Niblick, Putter, Cleek, Iron, Mashie and Iron Niblick. The first two are made wholly of wood, and the others have iron heads. Then there are the Spoons (long, mid, and short), Driving Cleek, Driving Mashie, Putting Cleek, Putting Iron, Metal Putter, Driving Putter, Driving Iron, and Lofting Iron. These all have iron heads, with the exception of the Driving Putter and the Spoons.

Gongs—Chinese.

It is said they are of an alloy consisting of 78 per cent. of copper and 22 of zinc. The operation of making them chiefly consists in a well-managed beating out and annealing of the disc.

Grafting.

In grafting, a sharp pocket knife and a good fine saw are indispensable. Splitting the stalk so that the bark shall not be at all bruised, and shaping the scion wedge-fashion both ways, preserving also the bark uninjured, and placing the rim of the wood of both stock and scion exactly together, so that the sap can intermingle—there is no danger of failure if they are properly waxed. One-year's wood should always be used when it can be obtained, as it is more certain to take and grows more vigorously. For grafting generally, any time is good when growth is going on, and there is not too much sap in the scion; the amount in the stock makes no difference. If there is much in the scion, it is liable to rot before the union takes place. If scions are taken from trees in health, and then kept from drying, sprouting, or other injuries, grafting may go on from early in the spring till mid-summer.

Grafting (Root) Apple Trees.

This kind of grafting is performed as follows: Take seedling stocks one or two years old, cut off the stock at the collar of the plant, and remove the top root and all unnecessary fibrous roots, leaving only a few of them four or five inches long. Wash the stocks, and make a very smooth cut sloping upward an inch or so across the collar. In the center of this cut make a slit or tongue to receive the scion. The scion, three or four inches long, should be made to fit the tongue exactly, both the woody part and the inner bark. On this close fitting depends the success of the operation. This done, cover the entire graft with the wax, or with prepared wax cloth, which is nothing more than cotton cloth spread thinly with grafting composition while it is hot. This work is commonly done in the leisure of winter. After the re-

quired number of stocks have been grafted, they are packed away in sand in a cool cellar to be planted in the spring.

Grafting Grapes.

Grafting grape vines may be done early in the spring, before the sap begins to flow, or after the vines have leaved out partially, and just after the main flow of sap is over; or it may be done in the fall, but in all cases it is to be done on the stock so low down that the scions may be covered with earth up to their buds. Attention to this point is necessary to success.

The operation is similar to grafting fruit trees—the scions should each have a single bud, and they should be cut off an inch above, and not less than three inches below the buds. The grape stocks are to be split, and the scions made with long, wedge-shaped ends, with shoulders, just as apple or other fruit-tree grafts are made, and with the inner sides of the wedges narrowest, so that the pressure will be greatest where the inner bark of vine and scion meet. These stocks are then bound with basswood bark, grafting wax applied, and the soil packed firmly around the scion, leaving the buds just above the ground.

When the grafting is done in the fall—and we think that the best season to do it—a flower pot should be inverted over such stock and grafts, (insert two scions to each stock) and covered with straw or barnyard litter around the stocks as above. It is thought by those who graft in the fall that the stocks and scions have more time to unite, and form a complete junction during the winter, and will grow sooner than when grafted in the spring.

When grape vines are cut off, when the sap is flowing freely, for the purpose of grafting them, they will be liable to “bleed” to death—that is, the

sap will escape to such a degree that the vitality of the roots will be destroyed; consequently all grafting in the spring should be done before the sap begins to flow, or after the flow of sap is over, early in June, in the climate of New York.

If vines are to be grafted above the ground, they should be bent over and covered with earth where the junction takes place, and a mulch of grass, or otherwise, put upon them, to cause them to continue moist. It is a rather difficult operation to graft grape vines three, four or more feet from the ground; yet we think it can be done, and a dozen varieties of grapes made to grow on one vine.

Grafting Wax.

Take 1 lb. of tallow, 3 lbs. of beeswax, and 4 lbs. of resin; put into a kettle and melt slowly until all the ingredients are combined. If to be used in the open air in cool weather, add $\frac{1}{4}$ to $\frac{1}{2}$ lb. more tallow. Melt the resin first, and be sure it is well melted before adding the wax and tallow. If this be not done, the grafting wax will be full of lumps. When melted pour it into cold water, and work it by hand into rolls of convenient size. In cold weather, soften the wax by putting it into warm water before using. When the scions are set—say as many as 20 or 30, or few as is wished—have the mixture ready and apply it warm, with a small wooden paddle. See that every part is covered and the air completely excluded. It requires no bandage.

Grafting Wax—Liquid.

M. L'Homme-Lefort invented, not many years ago, a grafting composition, which, when generally known, will no doubt supersede all others now in use, either for grafting purposes or for covering the wounds of trees. It is very cheap, very easily prepared, and keeps, corked up in a bottle with a

tolerably wide mouth, at least six months unaltered. It is laid on in as thin a coat as possible, by means of a flat piece of wood. Within a few days it will be as hard as a stone. In addition to all the advantages indicated above, it is not in the least affected by the severe cold of our winters; it never softens or cracks when exposed to atmospheric action or changes. There is no better preparation for covering the wounds of trees. As long as the inventor kept it a secret it was sold at a very high price, and even now it is generally unknown. The recipe is as follows: Melt 1 lb. of common resin over a gentle fire. Add to it 1 oz. of beef tallow, and stir it well. Take it from the fire, let it cool down a little, and then mix with a tablespoonful of spirits of turpentine, and after that about 7 oz. of very strong alcohol (95 per cent.) to be had at any drug store. The alcohol cools it down so rapidly that it will be necessary to put it once more on the fire, stirring it constantly. Still the utmost care must be exercised to prevent the alcohol from getting inflamed. To avoid it, the best way is to remove the vessel from the fire, when lumps that may have been formed commence melting again. This must be continued till the whole is a homogeneous mass similar to honey.

Grains, Vegetables and Fruits—Comparative Yield of Various.

The following table expresses in pounds per acre the comparative growth of various grains, fruits, etc.

	Lbs. per acre.
Hops.	442
Wheat.	1,200
Barley.	1,600
Oats.	1,840
Peas.	1,920
Beans.	2,000
Plums.	2,000
Cherries.	2,000

Vegetable Productiveness—Continued.

	Lbs. per Acre.
Onions.	2,800
Hay.	4,000
Pears.	5,000
Grass.	7,000
Carrots.	6,800
Potatoes.	7,500
Apples.	8,000
Turnips.	8,420
Cinquefoil grass.	9,600
Vetches, green.	9,800
Cabbages.	10,900
Parsnips.	11,200
Mangel wurzel.	22,000

Grapes—The Best Soil.

The best soil for the vine is a light, dry loam, with a slight intermixture of clay and calcareous matter, moderately rich, the soil inclining a little to the south. This should be plowed in the fall of the year, at least one foot deep, and trench plowing would be better, making one plow follow directly after another in the same furrow, turning up the ground, if possible, 15 or 18 inches deep. The utility of this is to give a light, deep surface for the roots to strike into the earth, and thus draw the more nourishment from it, and be sufficiently low and out of the way of being cut off, when the plow is run between the rows for after-cultivation.

Grape Culture.

Mr. W. Mead, of Western Virginia, is a practical, all-round fruit-grower, and has the following advice to give in regard to grape culture for Green's Fruit Grower:

I apply manure to the soil for three years after planting, and yet on some soils this might not be necessary. My object is to give health and vigorous growth to the vines and to get the trellis covered as soon as possible. After this my attention is given to the canes and body of the vine. In future years, after the vineyard has borne several crops, I manure it every other year. After three years' growth I prune back

to two buds. When the vine is seven or eight years old I cut back to one bud. My practice is to have as little of the old bark left on the main cane as possible, as it makes a place for insects to hide. If you want fine, large clusters, prune your vines back closely and do not let the canes run over seven or eight feet. Thin out the arms during the summer. Do not allow the clusters to form too quickly. Clip out where the clusters are too close, when the grapes are about the size of shot. Do not remove the leaves from the vine, as some people recommend.

Grape-vines are desirable and attractive for covering sides of buildings, barns, or walls, and you need not be afraid that the vines will do the building or walls any harm. They will protect them. Plant grape-vines for the health of your family, and for their enjoyment.

The longer you permit your canes of the grape-vine to run the smaller the fruit will grow.

The greatest percentage of sugar is formed close to the roots of the grapes, and not at the extremities.

Grape-vines—Propagation of by Layering.

Layering is a method of raising young vines by burying a branch of an old vine while it is still attached to the original root. The plan is especially desirable for growing vines which do not root readily from cuttings, as well as to get bearing vines quickly. Layers usually fruit at least a year sooner than those grown from cuttings. Strong canes of well-ripened wood should be selected, choosing those that can be bent to the ground without breaking. The soil should be dug away to a depth of two or three inches and the cane laid into the trench with the end left out. The cane should be fastened down firmly with pegs and be covered with only a small depth of soil,

perhaps an inch at first. The work is usually done in June, but can be done later if water is given occasionally, so the young roots will not dry out. At every joint of the covered cane roots will start out, and the latent buds will develop into new shoots. Not all should be allowed to grow, however, as there is not sufficient strength for all; so the rankest-growing shoots are selected and the others are broken off, only about half that start being allowed to grow. When the shoots are a few inches in height stakes should be provided, as the growth is much more rapid when support is given them. When the shoots get nicely above ground a little more soil may be hoed around them every time they are cultivated, until the trench is a little more than even full. The reason for filling it up slowly is because, if too great depth of earth is over the cane at first, it will be liable to rot. These layered vines should be cultivated once a week until late in the season, except there should be a period of very dry weather, when it might be best to mulch them heavily with strawy manure and give up cultivation for the rest of the season. In late fall the young plants can be separated and set out in the vineyard, or stored in a cool cellar till spring.

Grapes—Propagation by Cuttings.

In pruning vines, the wood of which I wish to propagate, I merely cut loose from the trellis, cut out the old wood that is to be abandoned, and cut the lateral branches and tendrils off; then, afterward, cut them to the proper shape, carrying the wood in canes to the house to dress the cuttings ready for planting, which I have often done in the fall with success. Owing to the danger of having them heaved out somewhat by frost, it is better to plant them out in the spring. Make the cut-

tings six to ten inches long, according to the joints, as a cutting should have two or three eyes, and some short-jointed varieties may have four or five eyes. Cut under the lower bud, at right angles with the bud (that is, square across) and one-half inch above the upper bud. Tie in bundles of 100 or 200 each and bury, covering about six inches with earth. Some recommend burying them upside down, but I have found out it makes but little difference whether right or wrong side up, or lying horizontally. If the wood is sound when put in, the cuttings will come out all right in the spring.

As soon as the frost is out of the ground in the spring, and it is dry enough to work well, they may be planted in rows three feet apart, and from three to six inches apart in the rows. Make a slanting trench at an angle of forty-five degrees, deep enough to hold the cuttings, so that the upper eye will be half an inch under ground when the earth is leveled. When the cuttings are laid in, always have the top bud on the upper side, so that the shoot can start straight out; fill the trench over half full and tread the ground firmly, then fill in the rest of the soil loosely. Of about 10,000 put in last spring, not five per cent. failed. These are as fine lot of plants as I ever grew. The *æstivalis* class is difficult to grow from cuttings, and these are propagated by layers. At times, when ready to set out my grape cuttings, I found the base of them calloused, and the buds swollen, ready to burst. When in this condition, they should not be exposed to the sun or air any length of time.

Grass—To Crystallize.

Having secured the grass during the summer and fall months, and dried it in a dark room, procure one-half pint of white spirit varnish, and 1 oz. of white frosting; dip the blades of grass

into the varnish separately; and immediately sprinkle on the powdered frosting; then put it away carefully to dry.

Grass—To Prevent Growing in a Paved Yard.

Pour boiling water over the stones whenever the grass shows itself.

Grates—Varnishing.

Melt four pounds of common asphaltum, and add two pints of linseed oil, and one gallon of oil of turpentine. This is usually put up in stoneware bottles for sale, and is used with a paint brush. If too thick, more turpentine may be added.

Grease Spots or Wax—To Extract from Cloth.

Hold a red-hot iron within an inch or two of the marks, and afterwards rub them with a soft clean rag.

Grease and Paint Spots—Balls for Removing from Cloth, etc.

Fuller's earth, 30 parts; French chalk, 1 part; yellow soap, 20 parts; pearl ash, 15 parts. Make into a paste with spirits of turpentine, and give it a slight color with a little yellow ochre, and then cut it into cakes.

Grease—Scouring Drops for Removing.

There are several preparations of this name; one of the best is made as follows:—Camphene, or spirit of turpentine, three ounces; essence of lemon, one ounce; mix and put in a small phial for use when required.

Grease—To Take out of Velvet or Cloth.

Pour some turpentine over the part that is greasy; rub it till quite dry with a piece of clean flannel; if the grease be not quite removed, repeat the application, and when done brush the part well, and hang up the garment in the open air to take away the smell.

Grease—To Extract from Books or Paper

Gently warm the greased or spotted part of the book or paper, and then press upon it pieces of blotting paper, one after another, so as to absorb as much of the grease as possible. Have ready some fine clear essential oil of turpentine heated almost to a boiling state, warm the greased leaf a little, and then, with a soft clean brush, apply the heated turpentine to both sides of the spotted part. By repeating this application, the grease will be extracted. Lastly, with another brush dipped in rectified spirit of wine, go over the place, and the grease will no longer appear, neither will the paper be discolored.

Grease Spots—To Extract from Linen.

Take magnesia in the lump, wet it and rub it on the spot thoroughly; let it remain an hour or so, and brush it off. Another way is to scrape French chalk upon the spot until it is well covered. Now hold a hot iron near it for a few minutes, and then brush off the chalk.

Grease—To Remove from Stone Steps or Passages.

Pour strong soda and water boiling hot over the spot, lay on it a little fuller's earth made into a thin paste with boiling water, let it remain all night, and if the grease be not removed, repeat the process. Grease is sometimes taken out by rubbing the spot with a hard stone (not hearthstone), using sand and very hot water with soap and soda.

Green Paint.

Every green color, simple or compound, when mixed up with a white ground, becomes soft, and gives a sea green of greater or less strength, and more or less delicate, in the propor-

tion of the respective quantities of the principal colors. Thus, green oxides of copper, such as chrome green, verdigris, dry crystallized acetate of copper, green composed with blue verditer, and the Dutch pink of Troyes, or any other yellow, will form, with a base of a white color, a sea-green, the intensity of which may be easily changed or modified. The white ground for painting in distemper is generally composed of Bougival (white marl), or white of Troyes (chalk), or Spanish white (pure clay); but for varnish or oil painting, it is sought for in a metallic oxide. In this case, ceruse or pure white oxide of lead is employed.

Green—Chrome.

Take Paris white, $6\frac{1}{2}$ lbs.; sugar of lead, and blue vitrol, of each $3\frac{1}{2}$ lbs.; alum, $10\frac{1}{2}$ ozs.; best soft Prussian blue and chrome yellow, of each $3\frac{1}{3}$ lbs. Mix thoroughly while in fine powder, and add water, 1 gal., stirring well and let stand 3 or 4 hours.

Green—Paris.

Take unslaked lime of the best quality; slake it with hot water; then take the finest part of the powder and add alum water, as strong as can be made, sufficient to form a thick paste, then color it with bi-chromate of potash and sulphate of copper until the color suits your fancy. N. B.—The sulphate of copper gives the color a blue tinge—the bi-chromate of potash a yellow. Observe this and you will never fail.

Green—Scheele's.

Carbonate of potash, 32 parts; water 325 parts. Dissolve, then add arsenious acid, 11 parts. Next, sulphate of copper, 32 parts; water, 480 parts. Dissolve and filter each solution separately; then add the first to the second until it ceases to produce a rich grass-green precipitate; collect and wash the green powder in clean water.

Green for Walls.

Take four pounds Roman vitriol, and pour on it a tea-kettle full of boiling water. When dissolved, add two pounds pearl ash, and stir the mixture well with a stick until the effervescence ceases; then add one-fourth of a pound pulverized yellow arsenic, and stir the whole together. Lay it on with a paint brush; and, if the wall has not been painted before, two, or even three coats will be requisite. If a pea-green is required, put in less, if an apple-green, more of the yellow arsenic. This paint does not cost the quarter of oil-paint, and looks better.

Greenhouse, or Conservatory—To Make.

The depth of greenhouses should never be greater than their height in the clear, which in small or middling houses may be sixteen or eighteen feet, but in large ones from twenty to twenty-four feet; and the length of the windows should reach from about one foot and a half above the pavement, and within the same distance of the ceiling.

The Floor of the Greenhouse.—This should be laid either with Bremen squares, Purbeck stone, or flat tiles, and must be raised two feet above the surface of the adjoining ground, or if the situation be damp, at least three feet; and if the whole is arched with low brick arches under the floor, they will be of great service in preventing damp, and under the floor, about two feet from the front, it will be advisable to make a flue ten inches wide, and two feet deep; this should be carried the whole length of the house, and then returned back along the hinder part, and there be carried up into funnels adjoining to the tool-house, by which the smoke may be carried off. The fire-place may be contrived at one end of the house, and the door at which the fuel is put in, as also the

ash-grate, may be contrived to open into the tool-house.

The Front of the Greenhouse.—While the front of the greenhouse is exactly south, one of the wings may be made to face the southeast, and the other the southwest. By this disposition the heat of the sun is reflected from one part of the building to the other all day, and the front of the main green-house is guarded from the cold winds. These two wings may be so contrived as to maintain plants of different degrees of hardiness, which may be easily affected by the situation and extent of the fire-place, and the manner of conducting the flues.

The Sloping Glasses of these houses should be made to slide and take off, so that they may be drawn down more or less in warm weather to admit air to the plants; and the upright glasses in the front may be so contrived as that every other may open as a door upon hinges, and the alternate glasses may be divided into two; the upper part of each should be so contrived as to be drawn down like a sash, so that either of them may be used to admit air in a greater or less quantity as there may be occasion. As to the management of plants in a greenhouse, open the mould about them from time to time, and sprinkle a little fresh mould in them, and a little warm dung on that; also water them when the leaves begin to wither and curl, and not oftener, which would make them fade and be sickly; and take off such leaves as wither and grow dry.

Grindstones—Artificial.

Washed siliceous sand, three parts; shellac, one part; melt and form it into the proper shape while warm. The fineness of the sand must depend on the work the stone is intended for. Powdered emery may be substituted for sand. The same composition is formed upon pieces of wood, for the

purpose of sharpening knives, and cutting stones, shells, etc.

Grindstones—Use of.

The periphery of every grindstone on which edged tools are ground should run as true as the dressed surface of a millstone, as it is impracticable to grind a tool correctly on a stone that revolves with an uneven motion. If the periphery of a stone varies half an inch in each revolution, the most expeditious way to put it in order is to loosen the wedges with which it is keyed to the journal, and rehang it. Then secure the bearings of the journal, so that they cannot be easily lifted out of the boxes, and turn periphery off true and smooth. Let a firm rest be fixed close to the stone, so that when the turning instrument comes in contact with the stone it will remove a thin chip without springing away from the stone. Stone-turners always employ for a turning tool the end of a bar of very soft iron, drawn out to a point, and turned up at the end for gouging. A piece of soft iron is far more effective than steel.

It is recommended to tar the center of grindstones, in order to compel those who grind upon them, to grind on the edges, forming a raised center which gives a better opportunity to put a good edge on a tool, than a level surface does. The ring of tar should be quite narrow, and all who grind are compelled to use the edges of the stone, as they cannot grind where the tar is. This remedy should be tried where farm hands will not heed your request to wear the stone off the edges.

Grubs (White)—Remedies for.

An authority says: A good coat of unrotted manure, plowed in six or eight inches deep, is almost a specific against white grubs in corn or potatoes. We suppose the grubs work in the manure and leave the corn plants

alone. Plowing under clover, immediately before planting, often has the same effect.

Guinea Fowl.

This bird is a native of that part of Africa which its name indicates, but it is also said to be indigenous in America. It is a larger bird than our ordinary barn-door fowl—but the eggs are small, three of them being hardly equal to an ordinary hen's egg; they are, however, numerous and well flavored. This fowl does not thrive in confinement, but requires perfect liberty, and a wide space over which to wander. And it is of so pugnacious a character, moreover, that it can hardly be got to associate with other poultry on amicable terms. The difficulty of rearing the young ones in this damp climate, and the very noisy and destructive habits of the old birds, may account for their absence generally from our poultry yards. They are, however, very excellent eating, and well worth the trouble of keeping. The best way to raise and keep them is to procure some eggs of a good stock, hatch them under a small variety of fowl, such as game-fowl or bantams; when the chicks appear, keep them under cover where they can have plenty of air and dry gravel; feed them frequently—at least once in every three hours. Begin by giving eggs and milk made into a rather dry custard; toward the end of the first month a little oatmeal mixed with milk, and as they grow older boiled vegetables small wheat and potatoes may be given. Ants' eggs are their favorite delicacy, and will be found most nourishing food for them. These birds are very fond of scratching in a garden, not for seeds, but for insects and grubs, and it is questionable whether they do most harm in rooting out the gardener's seeds, or good in destroying the insects that would destroy

his plants after they had grown up.

Guinea-pig—The.

This little animal, although called by the name of "pig," is in no way whatever related to the family to which the wild boar and the domestic hog belong. It is, on the contrary, comprehended in the order Rodentia, along with mice, rats, squirrels, and the various kinds of animals remarkable as the name of the order implies, for their habits of gnawing. The guinea-pig is a native of Brazil and Paraguay, where it is found wild; and there are various species of the same animal. When domesticated in this country, it very much resembles the rabbit, although it is smaller in size. It is frequently marked with irregular patches of black, white, and orange. The ears are round and almost naked, the feet are short, and there is no tail. It is a very cleanly animal, and the male and female spend much of their time in licking and smoothing each other's fur. It breeds at two months old, and brings forth from four to twelve young ones at a time. It is a pretty little animal, but can hardly be said to make a desirable pet, as it seems entirely devoid of attachment. In order to keep the little creature in comfort, the chief object, besides that of furnishing it with appropriate food, is to keep it scrupulously clean,—an object which its own instinctive habits ought to suggest to its owner.

Guns—Cleaning with Petroleum.

Cleansing a weapon with fats and oils does not entirely protect it from rust; the so-called drying oils get gummy and resinous, while the non-drying oils become rancid, and by exposure to the air acids are formed, and these attack the iron. For these reasons petroleum is to be preferred for this purpose. Petroleum is as great an enemy to water as are the

fatty oils, and hence, when a gun-barrel is covered with a film of petroleum, it keeps the water away from the metal. The water resting upon this film evaporates, but the oil does not, and hence no rust can be formed. It is very essential, however, that the petroleum employed be perfectly pure, for impure oil, such as is often met with in commerce, attacks the metal. Care must be taken not to allow it to come in contact with the polished stock. When about to clean a gun some tow is wrapped around the ramrod and petroleum poured upon it to thoroughly moisten it; it is then pushed in a rotary manner through the barrel and back a dozen times, and the tow taken out and unrolled, and the upper and lower ends of the barrel rubbed with the clean part, after which it is thrown away. This removes the coarser portion of the dirt. A round brush of stiff bristles and fitting the barrel is now screwed to the ramrod, then moistened thoroughly with petroleum and twisted into the barrel, running it back and forth at least a dozen times, thus loosening the dirt that is more firmly attached to it. The first operation is now repeated, except that the tow on the ramrod is left dry, and the rubbing with this must be continued in all directions as long as it comes out soiled. The use of wire brushes is objectionable for cleaning guns, as the numerous steel points cut into the tube. Only soft tow, hemp, woolen rags, or the like should be used, as the petroleum dissolves the dirt sufficiently.

Gun Barrels — Browning for.

Spirits of nitre 1 lb.; alcohol 1 lb.; corrosive sublimate 1 oz.; mix in a bottle and keep corked for use. Plug both ends of the barrel, and let the plugs stick out three or four inches, to handle by, and also to prevent the fluid from entering the barrel, causing

it to rust; polish the barrel perfectly; then rub well with quicklime by means of a cloth, which removes oil or grease; now apply the browning fluid with a clean white cloth; apply one coat and set in a warm, dark place, until a red rust is formed over the whole surface, which will require, in warm weather, from ten to twelve hours, and in cold weather, from fifteen to twenty hours, or until the rust becomes red; then card it down with a gun-maker's card and rub off with a clean cloth; repeat the process until the color suits, as each coat gives a darker shade.

Gun Barrels (Twist) — Browning for.

Take spirits of nitre $\frac{3}{4}$ oz.; tincture of steel $\frac{3}{4}$ oz. (if the tincture of steel cannot be obtained, the unmedicated tincture of iron may be used, but it is not so good); black brimstone $\frac{1}{4}$ oz.; blue vitriol $\frac{1}{2}$ oz.; corrosive sublimate $\frac{1}{4}$ oz.; nitric acid 1 dr. or 60 drops; copperas $\frac{1}{4}$ oz.; mix with $1\frac{1}{2}$ pts. of rain water. Keep corked, also, as the other, and the process of applying is also the same.

Gun Cotton.

Mix three parts of sulphuric acid (spec. grav., 1.85) with one part of nitric acid (spec. grav., 1.45 to 1.50), and when the mixture cools down to between 50 and 60 degrees Fahrenheit, clean rough cotton, in an open state, is dipped in it. Let soak, then pour off the excess of acid, and press the cotton tightly to remove as much as possible of what remains. Then cover the cotton and let stand for half an hour; press again, and thoroughly wash in running water. Partially dry it by pressure, then wash in a solution made by dissolving one ounce of carbonate of potash in a gallon of water. Press again, so that the cotton will be nearly dry; then wash in a solution of pure nitrate of potash,

one ounce to the gallon of water and again press, after which dry at a temperature of from 150 to 170 degrees. Its projectile force is equal to about twice its weight of the best gunpowder, but on account of its quickness of action, can hardly be used with safety.

Gun Metal—Brass.

Melt together 112 lbs. of Bristol brass, 14 lbs. of spelter, and 7 lbs. of block tin.

Another.—Melt together 9 parts of copper and 1 part of tin. The above compounds are those used in the manufacture of small and great brass guns, swivels, etc.

Gunpowder.

Gunpowder is made by carefully grinding and mixing 75 parts willow or birch charcoal, 15 parts saltpetre and 10 parts brimstone.

A cheap gunpowder, in which charcoal is replaced by common glue, is thus prepared: The glue or gelatine is first soaked in cold water, and then heated in diluted nitric acid until it dissolves. It is next evaporated to dryness, re-dissolved in water, and then carbonate of baryta is added to neutralize the acid. The solution is again evaporated, one part of sulphur and six parts of nitrate of potash for every two parts of glue being incorporated as the evaporation proceeds. This gives a slow-burning powder, which may be rendered more energetic by replacing nitrate by chlorate of potash.

Guns—How to Use Effectively.

The secret of success is a very simple matter after all. It consists in aiming well forward; nine out of ten misses are owing to the aim not being sufficiently forward. When game is going from you near the ground, the aim should be full high, or the bulk of the charge, if not the whole of it,

will pass below it; and when birds are higher than the gun going from you, the aim should be equally low, or the charge will pass above them. In cross-shots within, say, thirty-five or forty yards, the aim should be at least a foot or a foot and a half in front of it; at greater distance the allowance should of course be more. In part-ridge shooting, always endeavor to get cross-shots if possible, and this may generally be done by walking across, or heading your dog when pointing. If you go straight from him to the birds, they will generally go straight away; birds when flying across you present a far easier shot, and expose a more vital part.

Gun (Scattering Shot)—How to Remedy.

The only remedy known to gunsmiths is by choke-boring, that is, boring from the breech of the gun, so as to have a gradual taper toward the muzzle. This method of boring greatly improves the shooting qualities of the gun, as the charge concentrates at the muzzle. Large shot are more apt to scatter than fine, but this depends on the bore of the gun: A large-bored gun does not shoot fine shot so well as medium. A small-bored gun throws fine shot with greater force than a large-bored one. As a general thing, a small-bored gun is not adapted to large shot, as it does not chamber them well. The length of gun also depends on the size of bore—28 or 30 inches for a gun of from 10 to 14 gage; 30 to 34, of guns from 8 to 10; 26 to 28, guns of 15 to 18 gage.

Gun (Shot)—How to Clean.

Place your hammers at half-cock, then lift the barrels from the stock and you are ready to wash. Place the barrels in cold water, being careful the water is clean and that there is not any dirt or sand in the pail; then,

if you have the three-jointed washing rod with the necessary implements that accompany it, first use the brush until you have removed most of the dirty powder; next take tow, and wash until you have gotten it perfectly clean; then take soft cotton rags, and dry it out thoroughly. It is best to rub the barrels until they feel warm to the hand, then you may know your gun is dry, and in no danger of rusting. Hot or boiling water should never be used in the cleaning of a shot gun because it will—can not help—injure the “temper” of it.

Gutta-percha, Pure White— Preparation of.

This substance is now much used in dentistry and for other purposes; and as different qualities, some of them very inferior, are in the market, many of our professional readers may thank us for the details of a simple process for manufacturing it. Four ounces of the purest gutta-percha that can be selected are to be digested for several days with five pounds methyl chloroform until a solution is obtained thin enough to pass through filtering paper, care being taken during the operation to prevent any loss of the chloroform by using the apparatus constructed for that purpose. The solution is then to be filtered (an additional pound of chloroform will facilitate this) and should then be clear and nearly colorless. Alcohol is

now to be added in sufficient quantity to precipitate the gutta-percha in a voluminous white mass, which then is to be washed with alcohol, pressed in a cloth, and dried in the air. It must finally be boiled in water in a porcelain vessel for half an hour, and while still hot rolled into sticks. The chloroform can be separated from the alcohol by adding water, and the alcohol recovered by distillation.

Gutta-percha and Rubber—To Utilize the Waste of.

The waste is cut into small pieces, and 100 pounds of the same are placed in a well-closed boiler with 10 pounds of bisulphide of carbon and 4 ounces absolute alcohol, well stirred; then the boiler is closed, and left a few hours to soak. After this time it is found to be changed into a soft, dough-like mass, which, after being ground or kneaded, is fit to be formed into any shape, when the solvent will evaporate. If too much of the latter has been used, a thick, unmanageable liquid is obtained. This process was patented in England many years ago.

Gymnastic Rules.

The two great rules are: (1) that the strength of any machine, human or otherwise, is the strength of the weakest part, and (2) muscles are developed by exercise within their extreme power, but injured by exercise beyond their power.

H

Hair.

To cleanse the hair, make a wash with soft water, sal soda 1 oz., and $\frac{1}{2}$ oz. cream of tartar. Some of the much-advertised hair restorers are made of glycerine and borax.

Hair Brushes—To Clean.

Fill a pan with warm water, and dissolve in it a quarter of an ounce of soda

to half a gallon of water. Comb out the loose hairs; take one brush at a time by the handle and dip it several times in the water without wetting the back; then rinse in cold water, and put near the fire or in the open air to dry. Never use soap in washing hair brushes, or allow the water to be more than lukewarm, as hot water will soften bristles and melt the glue in the back, and also turn ivory backs yellow.

Hair Dyes.

Hair dyes color the hair only as far as the roots, and require to be applied as frequently as the growth of hair shows both the false and real color.

Dr. Hanman's.—Litharge, $\frac{1}{2}$ oz.; quicklime, 3 oz.; starch, 2 oz.; mix in powder. For use, mix in warm water, and rub on the hair to the roots. Cover the hair with oil skin or wadding for the night.

Orfila's.—Litharge, 6 parts; quicklime 5 parts; starch 1 part; mix and apply as above.

Spencer's.—Sap green $\frac{1}{2}$ drachm; nitrate of silver, 1 drachm; hot water 1 oz.; dissolve. Comb into the hair.

Warren's.—Lime, 4 oz.; white, $\frac{1}{2}$ oz.; litharge 1 drachm; mix in powder. Used with a Sponge and water, to dye black, or with milk to dye brown.

Batchelor's.—To 1 ounce of gallic acid, dissolved in 8 ounces of alcohol, add $\frac{1}{2}$ a gallon of soft water. To 1 ounce of nitrate of silver, dissolved in 1 ounce of concentrated ammonia and 3 ounces of soft water, add 1 ounce of gum Arabic and 4 ounces of soft water.

Hair Dyes—Lead in.

There is no doubt that the lead which forms so large a part of the various hair dyes in general use is injurious, if not actually dangerous, to the system. Headache, neuralgia, paralysis, etc., have in numberless cases been caused by the use of lead preparations for the hair, and for this reason they should never be used. Gray hairs, whether on the head of a middle-aged or old person, are invariably becoming, and are, or should be, "a crown of glory." Another objection to the dyeing of the hair is that it can be detected by the most casual observer, and, in fact, deceives no one.

Hair Invigorator.

Take bay rum, 1 pint; alcohol $\frac{1}{2}$ a pint; castor oil, 1 ounce; carbonate of ammonia, $\frac{1}{4}$ of an ounce; tincture of cantharides, $\frac{1}{4}$ of an ounce. Mix, and shake when used. To be used daily.

Another.—Vinegar of cantharides 1 ounce, Cologne water 1 ounce, and rose water 1 ounce, mixed and rubbed to the roots of the hair, until the scalp smarts, twice daily; has been very highly recommended for bald heads, or where the hair is falling out.

Another.—Carbonate of ammonia 1 ounce, rubbed up in 1 pint of sweet oil. Apply daily until the hair stops falling out, or is sufficiently grown out.

Another.—Strong sage tea as a daily wash, will be found to promptly stop the hair from falling out, and, if its use is persevered in, it will make it grow thick and strong.

Hair Restorative, Phalon's.

To 8 ounces of 90 per cent. alcohol, colored by a few drops of tincture of alkanet root, add 1 ounce of castor oil, and perfume with a compound of bergamotte, neroli, verbena, and orange.

Hair—Saponaceous Wash for the.

Rectified spirit 1 pint, rose water 1 gallon, extract of *rondeletia* $\frac{1}{2}$ a pint, transparent soap $\frac{3}{4}$ of an ounce, hay saffron $\frac{3}{4}$ of a drachm. Shave up the soap very fine; boil it and the saffron in a quart of the rose water; when dissolved, add the remainder of the water, then the spirit, and finally the *rondeletia*, which is used by way of perfume. After standing for 2 or 3 days, it is fit for bottling.

Halma.

This game is played by either two or four players, upon a special board containing 256 squares, or it may be played by one person à la solitaire.

The board is so marked that in each corner there is a "goal" or "yard" of thirteen squares bounded by a black or colored line. The thirteen square goals are used when four persons play. In two of the corners, however, six extra squares are marked off by a thicker line, and these nineteen square goals are used when only two persons play.

Place the board in position with a nineteen square goal at the left hand of each player. Each player selects his color and fills his nineteen squares with his own men.

The object of each player is to get all his nineteen men into his opponent's goal, and the one who does so first wins the game.

Each player steps or hops one of his pieces, in turn. A step means shoving or pushing a piece into any adjoining square which is vacant, either forward, backward, sideways, or any way (but only one square at a time).

A hop means jumping over one or a series of men (like leapfrog), but not more than one man can be jumped over at a time, and each man jumped over must necessarily have a vacant square behind it to jump into. The move is just the same as in checkers, but there is no "taking" of pieces, and a hop may be made backwards, or in any direction the player chooses. The hop also may mean a series, right across the board, even until there is no piece in an adjoining square to hop over—when the jump ends.

A player may hop over either his own or his opponent's pieces at his discretion, and then hop again in any direction, as often and as far as he finds opportunity, but he must not move in the same way as a knight does in chess.

As we have before stated, the board in this case is placed with a thirteen-square goal on the left of each player.

Halma for Four Players.

Each player may play for himself, when the game is virtually the same as with two players.

Two opposite players may be partners, in which case the object of the game is reversed, as they try to assist each other across the board, instead of blocking the way.

Hanging Basket—Novel.

Procure a large-sized turnip and scrape out the inside, leaving a pretty thick wall all around; fill cavity with earth, and plant in it some clinging vine or morningglory. Suspend the turnip with cords, and in a little time the vines will twine around the strings, and the turnip sprouting from below will put forth leaves and stems that will turn upwards and curl gracefully around the base.

Harness—Varnish for.

Half pound India rubber, one pound of spirits of turpentine; dissolve by a little heat to make it into a jelly, then take equal quantities of hot linseed oil and above mixture, and incorporate them well on a slow fire.

Harp (Eolian)—To Make.

Of very thin cedar, pine, or other soft wood make a box 5 or 6 inches deep, 7 or 8 inches wide, and of a length just equal to the width of the window in which it is to be placed. Across the top, near each end, glue a strip of wood half an inch high and a quarter of an inch thick, for bridges. Into the ends of the box insert wooden pins, like those of a violin, to wind the strings around, two pins in each end. Make a sound hole in the middle of the top, and string the box with small catgut or blue first-fiddle strings. Fastening one end of each string to a metallic pin in one end of the box, and carrying it over the bridges, wind it around the turning-pin in the opposite end of the box. The ends of the box should be increased in thick-

ness, where the wooden pins enter, by a piece of wood glued upon the inside. Tune the strings in unison and place the box in the window. It is better to have four strings, as described, but a harp with a single string produces an exceedingly sweet melody of notes, which vary with the force of the wind.

Hats—Care of High.

Should you get caught in a shower, always remember to brush your hat while wet. When dry, brush the glaze out, and gently iron it over with a smooth flat iron.

If your hat is very wet, or stained with sea-water, get a basin of clean cold water, and a good stiff brush; wash it well all over, but be careful to keep the nap straight; brush it as dry as you can, then put it on a peg to dry. When dry, brush the glaze out, and gently iron it over as above.

Should you get a spot of grease on your hat, just drop one drop of benzine on the place, and then rub it briskly with a piece of cloth until out.

Should you be traveling always tie your hat up in a handkerchief before putting it into your case; this will save it from getting rubbed or damaged through friction.

Never put your hat flat on the brim, as it will spoil its shape; but always hang it up on a peg.

Never put your hat, wet or dry, in front of the fire, as it will soften it, and throw it all out of shape.

Before putting your hat down, be careful to see if the place is free from spot of grease, beer, sugar, etc., as these things often spoil a good hat more than a twelvemonth's wear, and are often very difficult to remove. These simple rules will save a good hat for a very long time.

Hats (Panama)—How Made.

The process of making Panama hats is as follows:—The leaves of the pan-

damus, or Seren pine, from which these hats are made, are gathered before they unfold, the ribs and coarser vines are removed, and the rest, without being separated from the base of the leaf, is reduced to shreds. After having been put in the sun for a day and tied into a knot, the straw is immersed in boiling water until it becomes white. It is then hung up in a shady place, and subsequently bleached for two or three days, after which the straw is ready for use. The plaiting of the straw commences at the crown and finishes at the brim, and is a very troublesome operation. The hats are made on a block placed on the knees and require to be constantly pressed with the breast. The coarser hat may be finished in two or three days, but the finest may require as many months.

Hawk and Owl Traps.

To catch hawks or owls, take a pole 20 feet long, to be set a short distance from the house or barn or on the poultry house. Split the top so as to admit the base of a common steel trap, which should be made fast. When both trap and pole are set you may be sure of game of some kind. These birds naturally light on high objects such as dead branches of trees or tops of stacks, and one should use judgment about the place where he puts the traps. An open field, near the chicken yard, is probably best.

Hay Stacks—To Ventilate.

Stacks of hay, corn-stalks, etc., may be ventilated by making a hole perpendicularly through the centre, with apertures through the base and top or sides of the stack to admit a current of air. The orifice should be constructed when the stack is being built, which can easily be done by filling a bag of the requisite size with hay or straw, placing it upright in the center of the stack, drawing it upward according as the stack rises. In this way a chimney

will be formed in the center of the stack, which will carry off the steam, if the hay or corn-stalks should ferment, and by admitting air will prevent damage from mold. The top of the air tunnel should be protected by a roof to keep out rain.

Health.

Sir Astley Cooper said: "The methods by which I have preserved my own health are temperance, early rising, and sponging the body every morning with cold water, immediately after getting out of bed,—a practice which I have adopted for thirty years without ever catching cold."

Health—Royal Road to.

The royal road to health leads through the orchards, fruit gardens, vineyards, wheatfields, and along by the springs of pure water. It also goes by way of the fish and fresh meat markets. But everything must be handled with caution as you pass.

Warnings.—Disease is a thing that comes from an abnormal state of the chief organs of the body; it does not come suddenly, but gives various warnings; heed these warnings.

A very accurate knowledge of the body and its organs, their work in a state of health and disease can be acquired by almost any one, sufficiently, at least, to guide them in matters of food, hygiene, and sanitation. This education is within the reach of all.

Prevention. — The best remedy for disease is prevention. When disease first gives warning, look carefully to what you have eaten or drunk, or to how you have exposed yourself when fatigued or out of sorts. Disease comes gradually, and so does the cure.

The popular mind need no longer be deluded by the idea that every disease has a specific remedy. To get rid of diseases, root and branch, live a godly, righteous and sober life, always obeying the rules of health.

Heat.

The extreme summer heat, of course, varies in different places with latitude, altitude, etc. Roughly, the extreme varies from about 150 degrees Fahrenheit in Bengal to 34 degrees Fahrenheit in Nova Zembla. Ice forms at 32 degrees; blood heat is 98 degrees; alcohol boils at 174 degrees and water at 212 degrees; lead melts at 594 degrees, brass at 2233 degrees, and iron at 3479 degrees.

Hedges—To Plant.

A good way of planting hedges is to plow the ground about 12 or 15 inches deep, and pulverize completely; then set stakes in range as the hedge is to stand. Then take a common garden hoe and dig a hole as deep as the plants are to be set, standing with the face in range with the stakes; then put a plant down with the top toward you, leaning at an angle of about 45 degrees, being careful to put it a little deeper than it grew in the nursery; then cover that one up by digging the dirt out for the next plant, and so on, standing in the range of the stakes. It will facilitate the job by having a dropper to put the plants in their places as you need them.

Hedge—Barberry.

After obtaining good seed, mix it with moist earth, and keep it in a cool cellar, free from frost, until the spring opens. Then sow it in drills, like carrot seed. Thin out the plants to six inches apart, and keep the rows free from weeds. The following spring they will be ready to transplant. Set them out by a line, six inches apart in the row.

Hedge—Cedar, for Cold Latitudes.

First dig a ditch about 1 foot deep by 2 feet wide where the hedge is to be, then go and cut down second-growth cedars (out of thick clumps

or clusters are best, they having almost all their branches on one side), about 3 or 4 inches through at the butt; take branches and all and lay them in the ditch, with the thickest branches up; turn up the branches so they are not more than 8 inches apart, and if there are not enough on one tree, lay down two, side by side, butt and top together; then chop off all branches that cannot be got to lay in the ditch to about 10 inches long or so, so that they will cover up; then cover up, taking a little pains to stake and bend the branches that are to form the hedge into a straight row, or nearly so; then cover about two-thirds up, and then water and finish covering, and with a very little trouble the hedge in 5 years will be so thick that a hen cannot get through it, or sheep or cattle get over it, and will get stronger and larger every year. Where small second-growth cedars cannot be gotten, small trees will answer nearly as well—or even sow the seeds, which is a rather slow process, but sure.

Height—Normal.

A child of 4 years should be 3 ft. high, and should weigh at least 28 lbs.; one of 6 should be 3½ ft., and weigh 42 lbs.; one of twelve should be 5 ft., and weigh 70 lbs. Men obtain their maximum height about their 40th year, and women about their 50th.

Height—Relative to Weight of the Body. The late Dr. John Hutchinson, after obtaining the height and weight of over five thousand persons, prepared the following tabular statement, showing the relative height and weight of persons in health:

5 feet 1 inch,	120 pounds.
5 feet 2 inches,	125 pounds.
5 feet 3 inches,	133 pounds.
5 feet 4 inches,	139 pounds.
5 feet 5 inches,	142 pounds.
5 feet 6 inches,	145 pounds.

5 feet 7 inches,	148 pounds.
5 feet 8 inches,	155 pounds.
5 feet 9 inches,	162 pounds.
5 feet 10 inches,	169 pounds.
5 feet 11 inches,	174 pounds.
6 feet,	178 pounds.

Of course there are cases of variation.

Hemp Culture.

The land should be thoroughly pulverized with plow and harrow. The seed-bed cannot be put in too fine tilth. Fifty to seventy-five pounds of seed per acre should be sown evenly broadcast. The amount should depend upon the strength of the land; the stronger or richer the soil the more seed may be sown, the object being to secure all the plants the land will develop, and thereby a fine and a long fibre. The seed should be covered with a light harrow, running it both ways. The sowing should commence as soon as the ground is dry and warm enough to put into proper condition to receive the seed. There is no after-culture.

Hens—To Make Lay.

A hen is said to have the capacity of laying 600 eggs and no more—a few in her first year, from 320 to 375 in the next three, and the rest from the fifth to the ninth inclusive. The true economy, therefore, is not to keep hens after their fourth year. By feeding stimulating food, the hen can be made to lay the quantum of eggs with which she is endowed in a much shorter time than if left to scratch for herself. There is no better food for this purpose, fed each alternate day, than the following: To 3 gals. of boiling water add ¼ oz. of common salt, a teaspoonful of Cayenne pepper, and 4 oz. lard. Stir the mixture until the pepper has imparted considerable of its strength to the water. Meantime the salt will have been dissolved and the lard melted. Then,

while yet boiling hot, stir in a meal made of oats and corn, ground together in equal proportions, until a stiff mush is formed. Set away to cool down to a milk warmth. Before feeding taste to see that you have an overdose neither of salt nor pepper, and to prevent the hens from being imposed upon with a mixture not fit to be eaten. Besides this, especially during the winter, give them on the days on which the above mixture is omitted, $\frac{1}{2}$ oz. of fresh meat chopped fine, and at all times plenty of pure water, grain, gravel, and lime.

Hen-roosts—To Destroy Vermin on.

This can be done promptly and simply by sprinkling kerosene on their roosts.

Hens—To Set.

The most convenient way to set hens is to get a common tea chest or box, put a portable sloping roof to it, made of a few pieces of board. Put a hole at one end, like that for a dog-kennel. In front of this put a wire pen or frame made of lath. Provide the hen with food and water daily, and you need not be under anxiety about your hen leaving her eggs; she cannot get out, and will return on the eggs, if really broody, in a very short time. In this way you can have them entirely under your command.

Hens—To Prevent Setting.

Setting hens can be cured by putting water in a vessel to the depth of one inch, putting the hen into it, and covering the top of the vessel for about twenty-four hours. The vessel should be deep enough to allow the fowl to stand up.

Herbs—Drying.

Fresh herbs are preferable to dried ones, but as they cannot always be obtained, it is most important to dry herbs at the proper seasons:—Basil is

in a fit state for drying about the middle of August. Burnet in June, July, and August. Chervil in May, June, and July. Elder Flowers in May, June, and July. Knotted Marjoram during July. Lemon Thyme end of July and through August. Mint, end of June and July. Orange Flowers, May, June and July. Parsley May, June, and July. Sage, August and September. Summer Savory, end of July and August. Tarragon, June, July and August. Winter Savory, end of July and August.

These herbs, always on hand, will be a great aid to the cook. Herbs should be gathered on a dry day; they should be immediately well cleansed, and dried by the heat of a stove or Dutch oven. The leaves should then be picked off, pounded and sifted, put into stoppered bottles, labeled and put away for use. Those who are unable, or may not take the trouble, to dry herbs, can obtain them prepared for use at the drug store.

Hides—New Mode of Taking Off.

A new machine for taking off hides is now in use in South America. The operation is short, sharp, and decisive, requiring only a minute for each hide. Cold air is forced by a pump between the flesh and the hide, and the thing is done. The process ought to be an improvement on the old hacking and scraping system.

Hides, Green—To Cure.

A great many butchers do not use proper care in this branch, and the consequence is that the hides will not pass city inspection, owing entirely to the ignorance and carelessness of the persons preparing them for market. The proper way to salt hides is to lay them flat, flesh side up, and form a nearly square bed say 12 by 15 feet, folding in the edges so as to make them as nearly solid as possible.

Split the ear in the cords that run up the ear in each one, so as to make them lie out flat. Sprinkle the hide with two or three shovelfuls of coarse salt, as the size may require—say for a sixty or eighty pound hide, from ten to fifteen pounds of salt. At any rate cover the hide well, as it need not be wasted; then let them lie in this from 12 to 20 days, after which take them up, shake the salt out and use it again.

Hog—The American.

It has been said by high authority that in the American hog we have an automatic, combined machine for reducing the bulk in corn and enhancing its value. A machine that oils itself puts ten bushels of corn into less than a bushel measure and quadruples the value of the grain. Corn loaned to a well-bred hog is cash at a big interest. A good brood sow is the ideal of a safe investment, a sort of bucolic bond, the coupons of which materialize in large litters of pigs, convertible into cash on demand.

Breeds.—In swine there are few breeds and of these one great breed dominates all the others. It is estimated that nine-tenths of all the pure-bred swine in the United States are Poland-Chinas, a breed that has proven itself to be exactly adapted to every condition it is likely to encounter on the average "corn belt" farm of America. However, the Poland-China has some very sturdy competitors for favor. The Berkshires are, no doubt, a great breed of swine and they are making marvelously rapid strides toward the leadership in the swine kingdom. Within a few years they have been greatly improved, and on account of their heavy hams and shoulders, and the quality of the bacon that is made from their flesh, they are coming more and more into demand in the great markets of the country.

The Chester-Whites are an old breed, which is in high favor in some sections, but, being a white breed, they have never been great favorites in the corn belt where the black Poland-China or Berkshire is preferred.

The Duroc-Jersey, a red or sandy-colored hog, is being very much improved of late years, and from being a rough and bony hog has been bred to such perfect shape that it is sometimes called the "Red Berkshire." That it has many good qualities no one doubts, but it is equally true that it is not a favorite with more than a few breeders, compared with the number that hold to other breeds.

Besides these four breeds there are the Victoria, the Essex, the Yorkshire and a few other breeds rarely seen outside live stock shows.

Honey Water.

Rectified spirit, eight ounces; oil of cloves, oil of bergamot, oil of lavender, of each half a drachm; musk, three grains; yellow sanders shavings, four drachms. Let it stand for eight days, then add two ounces each of orange-flower water and rose water.

Horn—To Color Black.

A process for imparting a black color to horn, without the aid of heat, consists in taking the articles, finished and ready for polish, and immersing them in a lye of caustic potash or soda, until the outer surface of the horn is somewhat dissolved, as shown by a greasy feel. With care, fine-tooth combs can be treated in this way without any injury. They are then washed off and dipped in aniline black, slowly dried, and then again washed off. By transmitted light the horn is of a dark brown color, but by reflected light it is of a deep black.

Horn—In Imitation of Tortoise-Shell.

First steam and then press the

horn into proper shapes, and afterwards lay the following mixture on with a small brush, in imitation of the mottle of tortoise shell: Take equal parts of quicklime and litharge, and mix with strong soap-lees; let this remain until it is thoroughly dry; brush off, and repeat two or three times if necessary. Such parts as are required to be of a reddish-brown should be covered with a mixture of whiting and the stain.

Horses—How to Judge and Select.

Light sorrel or chestnut with feet, legs, and face white, is a mark of kindness. A deep bay, with no white hair, will be a horse of great bottom, but a fool, especially if his face is a little dishd. They are always tricky and unsafe. A black horse cannot stand the heat, nor a white one the cold. The more white about the head the greater his docility and gentleness.

Eyes.—If broad and full between the eyes, he may be depended on as a horse for being trained to anything.

Ears.—Intelligent animals prick up their ears when spoken to; vicious ones throw theirs back.

Face and Neck.—Dish-faced horses must always be avoided, and a broad forehead, high between the ears, indicates a very vicious disposition; while a long, thin neck indicates a good disposition; contrawise, if short and thick; the nostrils of a good horse should be large.

Horse—Points of a Good.

He should be about $15\frac{1}{2}$ hands high; the head light and cleanly made; wide between the nostrils, and the nostrils themselves large, transparent and open; broad in the forehead; eyes prominent, clear and sparkling; ears small and neatly set on; neck rather short, and well set up; large arm or shoulder, well thrown back, and high; withers arched and high; legs fine, flat, thin

and small boned; body round and rather light, though sufficiently large to afford substance when it is needed; full chest, affording play for the lungs; back short, with the hind-quarters set on rather obliquely. Any one possessing a horse of this precise make and appearance, and weighing 1100 or 1200 lbs., may rest assured he has a horse for all work, and a bargain well worth getting hold of.

Horse (Cart)—Points of a Good.

A well shaped head, rather large; a long clear ear, full eye, neck rather long, but not too much arched; strong withers, lying well forward to catch the collar at the proper angle for draught, and broad shoulders well spread into the back; back very straight, ribs long and well rounded, hind legs bent at the hock, forelegs forward, hind-quarters somewhat round, but not sufficiently so to make them look short; the mane and tail of strong but not coarse hair, and with a fetlock about 2 inches long; broad knees, long hocks, short shanks, and hard ankles or fetlock joints, and round hoofs, well opened behind; the nearer you can approach this description, the nearer the horse will be to perfection.

Horse—Cure for Pawing.

Nail iron strips across the horse's stall—say strips one inch wide and one-half inch thick, six inches apart, securely nailed crossways his stall—and they will soon make him sick of pawing, when he will no doubt find some other way of passing away the time. If he takes to kicking, fasten the trace chain around his fetlock; if to eribbing, trade him off and let some one else cure him of that detestable habit.

Horses—Age of, by Teeth.

A horse has 40 teeth—24 double teeth or grinders, 4 tushes, or single cusp

teeth, and 12 front teeth, called gatherers. As a general thing, mares have no tushes. Between 2 and 3 years old, the colt sheds his 4 middle teeth—2 above and 2 below. After 3 years old 2 other teeth are shed, 1 on each side of those formerly changed; he now has 8 colt's teeth and 8 horse's teeth; when 4 years of age he cuts 4 new teeth. At 5 years of age the horse sheds his remaining colt's teeth, 4 in number, when his tushes appear. At 6 years of age his tushes are up, appearing white, small and sharp, while a small circle of young growing teeth is observable. The mouth is now complete. At 8 years of age the teeth have filled up, the horse is aged, and his mouth is said to be full.

By Eyelid.—After a horse is 9 years old, a wrinkle comes on the eyelid, at the upper corner of the lower lid, and every year thereafter he has 1 well-defined wrinkle for each year over 9. If, for instance, a horse has three of these wrinkles, he is 12; if four, he is 13. Add the number of wrinkles to 9, and you will invariably judge correctly of a horse's age.

Horse's Eyes—To Test a.

To test a horse's eyes, look at the eye carefully, when the horse is in rather a dark stable. Note the shape and size of the pupil carefully, carry this in your mind while you turn the horse about to a strong light. If the pupil contracts and appears much smaller than in the first instance, you may infer that the horse has a good strong eye; but if the pupil remains nearly of the same size in both cases, his eyes are weak, and you would better have nothing to do with him.

Horses—When Unsound.

Any of the following defects constitute unsoundness in a horse:

Lameness of all kinds and degrees. Diseases of any of the internal organs. Cough of every kind, as long

as it exists. Colds or catarrhs, while they last. Roaring, broken wind, thick wind, grease, mange, farcy and glanders; megrims or staggers, founder, convex feet, contracted feet, spavins and ringbones, enlargement of the sinews or ligaments, cataracts and other defects of the eyes, impairing sight.

The following may or may not occasion unsoundness, according to the state or degree in which they exist: Corns, splints, thrushes, bog-spavins, through pins, wind-galls, crib-biting. Curbs are unsoundness, unless the horse has worked with them for some months without inconvenience.

Cutting, particularly speedy cutting, constitutes unsoundness when it cannot be remedied by care and skill. Quidding, when a confirmed habit, injures the soundness of a horse.

Defects, called blemishes, are: Scars from broken knees; capped hocks, splints, bog-spavins, and through pins; loss of hair from blisters or scars, enlargements from blows or cutting, also specks or streaks on the corner of the eye.

Vices are: Restiveness, shying, bolting, running away, kicking, rearing, weaving, or moving the head from side to side, stringhalt, quidding, slipping the halter.

Horses—Care of.

The man having the care of horses should be the embodiment of patience. His temper should always be under perfect control. He should never inflict any unnecessary pain, for it is only by the law of kindness that a horse can be trained and managed. No man ever yet struck a horse, but that he made the horse the worse for it. Patience and kindness will accomplish in every instance what whipping will fail to do. Horses having a vicious disposition are invariably made so from cruel treatment.

Horses are designed to work, and daily labor for them is as much a necessity to their existence as to that of man's. It is not the hard drawing and ponderous loads that wear out horses, and make them poor, balky and worthless; but it is the hard driving, the worry by rough and inhuman drivers, that use up more horseflesh, fat, and muscle than all the labor a team performs. Another great reason why there are so few really sound animals, is because of their being put to work too soon. Horses are not developed until they are five, six or seven years old, and they should do very little work until they reach that period.

When a horse is worked hard, its food should chiefly be oats; if not worked hard, its food should chiefly be hay; because oats supply more nourishment and flesh-making material than any other kind of food; hay not so much.

Horses—Food for.

Horses are usually fed thrice daily—namely, in the morning, at midday and at night. It is not possible to state the exact quantity of food a horse requires to keep him in good working condition. In all cases the horse himself tells whether he is getting too much or too little. The best feed for ordinary road horses is hay and oats. Ten pounds is a fair allowance of good hay, and to fast-working horses 15, 20, or 25, pounds of oats; one-third of the hay may be given during the day, the balance at night. Horses differ so much in the quantity of hay they may eat without inconvenience—in fact, they vary so much in size, age, breeding, temper, condition and labor they are called upon to perform, that it is impossible to fix upon any specific rules for feeding them.

Oats—Oats should be bruised for an old horse, but not for a young one, because the former, through age and defective teeth, cannot chew them properly; the young horse can do so, and they are thus properly mixed with the saliva and turned into wholesome nutriment. Carrots given occasionally will give a fine, silky appearance to the coat, and experiments have shown that the best way to feed carrots is to give them with oats. If you are in the habit of feeding 4 quarts of oats to a mess, give 2 of oats and 2 of sliced carrots, and the result will be very gratifying.

Carrots.—Youatt writes of the carrot: "This root is held in much esteem. There is none better, nor perhaps so good; when first given it is slightly diuretic and laxative, but as the horse becomes accustomed to it these effects cease to be produced. They improve the state of the skin. They form a good substitute for grass and an excellent alternative for horses out of condition. To sick and idle horses they render grain unnecessary. They are beneficial in all chronic diseases connected with breathing, and have a marked influence upon a chronic cough and broken wind. They are serviceable in diseases of the skin, and, in combination with oats, they restore a worn horse more than oats alone." It is also advantageous to chop hay fed to a horse, and to sprinkle the hay with water that has salt dissolved in it—a teaspoonful of salt to a bucket of water is sufficient. Rack-feeding is wasteful. The better plan is to feed with hay (chopped) from a manger, because the food is not then thrown about, and is more easy to chew and digest.

Vetches and Cut Grass.—Vetches and cut grass should always be given in the spring to horses that can not be turned out into the fields, because

they are very cool and refreshing, and almost medicinal in their effects; but they must be supplied in moderation, as they are liable to ferment in the stomach, if given largely.

Change of Food.—As often as once a week a change of food should be made—one feed of cut hay and meal, or cut hay with shorts will do. Musty hay on no account should be fed to horses. Let the food be the best of its kind, for in the end it is cheapest.

Horses—Water for.

Water is usually given three times a day; but in summer, when the horse sweats much, he should have water four or five times; under ordinary circumstances, two rules will guide the attendant. The first is, never to let the horse get very thirsty; the second to give him water so often and in such quantity that he will not care to take any within an hour of going to fast work. The quantity of water which a horse will drink in twenty-four hours is uncertain; it varies so much that one will drink quite as much as two or three others. It is influenced by the food, the work, the weather, and the number of services; the demand for water also increases with the perspiration. Horses at fast work, and kept in hot stables, need a large allowance; horses at slow work may be permitted to take what quantity they please; but to those at fast work occasional restriction is necessary. Restriction is always necessary before fast work. A few quarts given an hour before going to work ought to suffice. Water should always be given before rather than after grain. Water your horses from a pond or stream rather than from a spring or well, because the latter is generally hard and cold, while the former is soft and comparatively warm. The horse prefers soft, muddy water to hard water, though ever so clear,

Horse-feeding on the Road.

Many persons, in travelling, feed their horses too much and too often, continually stuffing them, and not allowing them time to rest and digest their food; of course they suffer from over-fullness and carrying unnecessary weight. Horses should be well fed in the evening, and must not be stuffed too full in the morning, and the travelling should be moderate on starting when the horse has a full stomach. He can go 20 or 25 miles without feeding.

Horses—Cleaning.

When brought in from work, warm with exertion, the horse must be rubbed down and then blanketed; but we would not blanket a horse in a good stable, as a general rule, except in extremely cold weather. A sharp-toothed curry-comb is the dread of a fine-skinned horse, and the brush and straw wisp answer the same purpose much better, if used as frequently as they should be. Mud should not be allowed to dry on the legs of a horse; it is the cause of half the swelled legs, scratches and other affections of the feet with which they are afflicted.

Horses—Stables for.

The floor of the stable should be level, or nearly so. When it is inclined it causes the horse to hang back, because the incline causes his loins and hind parts to ache intolerably, and he hangs back in order, if possible, to get his hind legs beyond the gutter, thus diminishing by many degrees his standing up hill. The best bedding is that of straw, fine shavings from a planing mill, or sawdust—pine sawdust being best, and oak sawdust the worst. They should be allowed to stand on the naked floor as little as possible. "If I were asked," said a noted stock raiser, "to account for my horses' legs and feet being in better order than those of my neighbor, I should attribute it to the four following circumstances: First, they are all shod with a few nails, so

placed in the shoe as to permit the foot to expand every time they move. Second, they all live in boxes, instead of stalls, and can move whenever they please. Third, they spend two hours daily in walking exercise, when they are not at work. Fourth, that I have not a head-stall or trace-chain in my stable. These four circumstances comprehend the whole mystery of keeping horses' legs fine, and their feet in sound working condition up to old age."

Horse Stables—To Deodorize.

Sawdust, wetted with sulphuric acid diluted with forty parts of water, and distributed about horse stables, will, it is said, remove the disagreeable ammoniacal smell, the sulphuric acid combining with the ammonia to form a salt. Chloride of lime slowly evolves chlorine, which will do the same thing, but then the chlorine smells worse than the ammonia. Sulphuric acid, on the contrary, is perfectly inodorous. The mixture must be kept in shallow earthenware vessels. The sulphuric acid used alone; either diluted or strong, would absorb more or less of the ammonia, but there would be danger of spilling it about, and causing serious damage; and beside this, the sawdust offers a large surface to the floating gas.

Horses—Blanketing.

In reference to blanketing horses in winter, it is doubtless true that blanketing keeps a horse's coat smoother in winter, and hence fine carriage horses and saddle horses will continue to be blanketed. But where horses are kept more for service than for show, we think they would better dispense with the blanket. Keeping them constantly covered makes them tender and liable to take cold. It is better to give them a warm stable, and plenty of straw for bedding, and good food. When they are to stand for any length of time out of doors on a cold winter's day, they should have blankets. And

so when they come in from work steaming hot, they should be allowed to stand for a short time until they have partially cooled off; then the blankets should be put on for an hour. Be careful and not delay putting on the blanket until they have become chilled.

Horse—Well Tried Remedies.

Ball, Cough.—Pulverized ipecac, $\frac{3}{4}$ oz.; camphor, 2 oz.; squills, $\frac{1}{2}$ oz. Mix with honey to form into mass, and divide into eight balls. Give one every morning.

Balls, Diuretic.—Castile soap scraped fine and powdered rosin, each 3 teaspoonfuls; powdered nitre, 4 teaspoonfuls; oil of juniper, 1 small teaspoonful; honey, a sufficient quantity to make into a ball.

Balls, Fever.—Emetic tartar and camphor, each, $\frac{1}{2}$ oz.; and nitre, 2 ounces. Mix with linseed meal and molasses to make eight balls and give one twice a day.

Ball, Physic.—Take 2 oz. of aloes; 1 oz. of turpentine, and 1 oz. of flour; make into a paste with a few drops of water, wrap in a paper, and give them with a balling iron.

Ball, Purgative.—Aloes, 1 oz.; cream tartar and Castile soap, $\frac{1}{4}$ oz. Mix with molasses to make a ball.

Ball, Worm.—Assafœtida, 4 oz.; gentian, 2 oz.; strong mercurial ointment, 1 oz. Make into mass with honey. Divide into sixteen balls. Give one or more every morning.

Horses, Balky—What to Do to Cure.

A man, in order to be able to control a horse, must first learn to control himself; for, as a rule, when a horse is patiently made to understand what is required of him, he becomes a willing subject. To attempt to force him to do what he does not understand, or to use the whip under such circumstances, only excites him to more determined resistance. One method to

cure a balky horse is to take him from the earriage, and whirl him rapidly round till he is giddy. It requires two men to accomplish this—one at the horse's tail. Don't let him step out. Hold him to the smallest possible circle. One dose will often cure him; two doses are final with the worst horse that ever refused to stir. Another is to fill his mouth with dirt or gravel from the road, and he will at once go—the philosophy of this being that it gives him something else to think about.

Horse—Wound Balsam.

Gum benzoin in powder, 6 oz.; balsam of tolu in powder, 3 oz.; gum storax, 2 oz.; frankincense in powder, 2 oz.; gum myrrh in powder, 2 oz.; Socotrine aloes in powder, 3 oz.; aleohol, 1 gal. Mix them all together and put them in a digester, and give them a gentle heat for three or four days, and then strain.

Horses—Blister, Liquid for.

Take $\frac{1}{2}$ a pint of linseed oil, 1 pint of spirits of turpentine, and 4 oz. of aqua ammonia; shake well and it is fit for use. Apply every third hour until it blisters.

Horses—Big Leg in.

To cure, apply the above Liquid Blister every third hour until it blisters. In three days wash the leg with linseed oil. In six days wash it clean with soap and water. Repeat every six days until the swelling goes down. If there should be any callus left, apply spavin ointment.

Horses—Big Head in.

When this disease occurs, every care must be devoted to improving the general health. Let work be regular and moderate. Have the stable clean, dry, and well ventilated. Feed on sound hay and oats, either bruised or cooked. Withhold all Indian corn—above all if raw and hard. Four or five pounds of

linseed cake may be given daily. Give every day, in the feed, 2 draehms of phosphate of iron, and 4 draehms of powdered gentian.

Horses—Big Shoulder in.

See Big Head.

Horses—Sore Breasts in.

This generally occurs in the spring, at the commencement of plowing. At times the fault is in having poor, old collars, and not having the collar properly fitted to the horse's breast; and at others, the hames are either too tight or too loose. There is a great difference in horses about getting chafed or galled, and at times it has seemed to be impossible to keep their breasts from getting sore; but a thorough application of strong alum water or white oak bark to the breast of the animal, three days before going to work, will toughen them so that they will not get sore. Another excellent plan is, when you let your team rest for a few moments during work, to raise the collar and pull it a little forward, and rub the breast thoroughly with your naked hand.

Horses—Blood, Fullness of, in.

When this condition appears, the eyes appear heavy, dull, red or inflamed, and are frequently closed as if asleep; the pulse is small and depressed; the heat of the body somewhat increased; the legs swell; the hair also rubs off. Horses that are removed from grass to a warm stable, and full fed on hay and corn and not sufficiently exercised, are very subject to one or more of these symptoms. By regulating the quantity of food given to him, by proper exercise and occasional laxatives, a cure may soon be effected.

Horses—Bowels, Loose, in.

In cases of chronic diarrhœa, a good remedy is to put powdered charcoal in the feed, and if the disease depends

on a digestive function—the liver included—give a few doses of the following: Powdered golden seal, 2 oz.; ginger, 1 oz.; salt, 1 oz. Dose $\frac{1}{2}$ an oz. twice a day.

Horses—Bots in.

Bots are the larvæ of the gad fly, of which there are three different kinds. The female gad fly, during the summer months, deposits her ova on the horses' legs or sides and they become firmly attached to the hair. After remaining on the leg for some time, perhaps four or five days, they become ripe, and at this time the slightest application of warmth and moisture is sufficient to bring forth the latent larvæ. At this period, if the tongue of the horse chances to touch the egg, its operculum is thrown open, and a small worm is produced, which readily adheres to the tongue, and with the food is conveyed into the stomach, and therein is lodged and hatched. It clings to the cuticular coat by means of its tenacula, between which is its mouth; and in such a firm manner does it adhere to the lining of the stomach, that it will suffer its body to be pulled asunder without quitting its hold. Bots are often supposed to do a good deal of harm, but except in cases where they accumulate in very large numbers, we are of the opinion that they are almost harmless, because in ordinary cases they are chiefly attached to the cuticular coat, and the cuticular coat of the stomach is not possessed of a great degree of sensibility. Most horses that have been running at pasture during the summer months become affected more or less with bots, and their presence in the stomach is thus accounted for.

Symptoms.—When a horse is troubled with the bots, it may be known by the occasional nipping at their own sides, and by red pimples and projections on the inner surface of the upper

lip, which may be seen plainly by turning up the lip. To remove them, take of new milk 2 quarts, molasses, 1 quart, and give the horse the whole amount. Fifteen minutes afterward give 2 quarts of very warm sage tea, and thirty minutes after the tea give 1 pint of linseed oil, (or enough to operate as a physic). Lard has been used, when the oil could not be obtained, with the same success. The cure will be complete, as the milk and molasses cause the bots to let go their hold, the tea puckers them up and the oil carries them entirely away. The spring is the only season in which there is a chance to effectually remove them.

Horses—Cataract in Eye.

This can be removed from a horse's eye with finely pulverized burnt alum, blown into the horse's eye through a goose quill. Or take oil of wintergreen, get a small glass syringe, and inject a few drops into the eye, and after three days repeat the application.

Horses—Nasal Catarrh or Coryza in.

This malady is commonly known as a cold; it is an inflammation of the membrane lining the interior of the nose, and is observed in all the domestic animals. It occurs frequently after sudden changes in the temperature of the atmosphere, which checks or diminishes largely the action of the skin. In the early stage the animal is feverish; the membrane of the nose is dry and infected; the animal also frequently sneezes and coughs. There is a watery mucous discharge from one or both nostrils, which by degrees assumes a yellowish color. In young animals this affection is generally associated with swellings beneath the jaws. When the disease extends over a longer period than a fortnight it assumes a chronic type.

Treatment.—Dissolve $\frac{1}{2}$ an ounce of nitre in a pint of water, and administer this to the patient daily, or it may be mixed with the water which the horse drinks. A bran mash should be given every other day. When the disease assumes a chronic form, which is seldom the case, injecting the nose with a weak solution of alum will remove the discharge. Young horses are very apt to have swelled legs unless they get walking exercise for a short time every day. This is owing partly to the weakness of the circulation, and partly to a deteriorated state of the blood having been engendered during the horse's sickness.

Horses—Clicking, to Prevent.

This is noticeeable by a disagreeable clicking noise made by the horse striking the toe of his hind shoe against the inner edge of the fore one. To prevent this annoying habit, shoe the hind foot short at the toe—that is to say, set the shoe as far back as is compatible with security and safety; the fore shoe should be forged narrow with the inner margin filed round and smooth.

Horse Colic.

The horse often lies down, and suddenly rises again with a spring; strikes his belly with his hind feet, stamps with his fore feet, and refuses every kind of food, etc. The following is said never to fail in curing cases of colic: Aromatic spirits of ammonia, $\frac{1}{2}$ oz.; laudanum, $1\frac{1}{2}$ oz.; mix with 1 pint of water, and administer. If not relieved, repeat the dose in a short time. Another and a better remedy is to take a piece of carpet, blanket, or any thick material, large enough to cover the horse from his fore to his hind legs, and from the spine to the floor as he lies, and wring it out in hot water as hot as you can stand. You need not fear scalding the animal. Apply this to the horse and cover it with a similar

dry cloth. As soon as the heat diminishes much, dip the wet cloth again in hot water.

Horse Collar—How to Fit a.

An excellent plan and one that will not injure the collar, is to dip it in water until the leather is thoroughly wet, then put it on the horse; secure the hames firmly, keeping it there until it becomes dry. It is all the better if heavy loads are to be drawn, as that causes the collar to be more evenly fitted to the neck and shoulder. If possible, the collar should be kept on from four to five hours, when it will be perfectly dry, and retain the same shape ever afterwards; and as it is exactly fitted to the form of the neck, will not produce chafes nor sores on the horse's neck.

Horses—Corns.

There are no fixed rules for the treatment of horses with corns. Corns occur to horses with the best of feet. The high-heeled and contracted-quartered, the low as well as the broad, all occasionally become afflicted with this annoying disease, the common cause being the worst of shoeing. Success in the treatment of corns must rest entirely upon the intelligent understanding of the shoer. If he is master of the art, he will see at a glance what parts of the foot require to be removed. In the preparation of the foot, no matter what its form, so long as there is no reason to suspect suppuration, no "paring out the corn" should be permitted. When such officious exploration is permitted, the healthy condition of the whole foot is interfered with; the scooping out of the horn at the angle formed by the wall and bar interferes with the natural growth of those parts, causes them to tilt over and to press directly upon the seat of the corn, thus inflicting injuries which frequently terminate in suppuration. Let the horse's foot be properly ad-

justed in all its parts, always leaving as broad and level a bearing surface as possible. With regard to the shoe, unless the condition of the horse's foot requires some special modification for its protection, we prefer a plain shoe, a small clip at the toe, moderately broad web, and of uniform thickness from toe to heel.

Colts—Their Care and Management.

Much harm arises from improper weaning. A good method is, when the colt is four or five months old, to put a strong halter upon him, place him in a stall, and put his mother in an adjoining stall, with a partition between so arranged that they can see each other, and if possible get their heads together. The first day let the colt nurse twice—the next day once. Feed the mare upon dry hay and dry feed, and about half milk her two or three times a day until dry. Feed the colt upon new-mown grass or fine clover hay, and give him a pint of oats twice per day, and in about two weeks you will have your colt weaned, and your mare dry, and your colt looking as well as ever. When he is one year old, he has as much growth and development of muscle as one two years old weaned in the usual manner.

When the mare becomes dry, colt and mare may be again turned in pasture. An opinion generally prevails among farmers that, from the time the foal is taken from its dam up to coming to maturity it should not be "pushed," as the saying is, nor fed on grain, for fear it would injure one so young and tender. This accounts for the great number of moping or spiritless and unthrifty colts, that are scarcely able to drag one leg after another. Their very appearance, their cadaverous and pitiful looks, seem to convey to the mind of every sensible man that they are the victims of a wretched system of star-

vation, which enervates the digestive organs, impairs the secretions, and impoverishes the blood. Hence the deficiency in the development of bone and muscle. The muscles and tendons, being so illy supplied with material for growth and development, become very weak, and afford but little support to the bones and joints, so that the former become crooked and the latter weak—defects which no after feeding, no skill in training can counteract.

It must be known to breeders that from the time of birth up to maturity, colts require food abounding in flesh-making principles, nitrogenous compounds—oats, corn, etc.; otherwise they must naturally be deficient in size, symmetry, and powers of endurance.* Therefore they should be regularly fed and watered; and their food should consist of ground oats, wheat bran, and sweet hay, in quantities sufficient to promote their growth. Finally, proper shelter should always be provided for them. They should not be exposed, as they often are, to the vicissitudes of the weather, under the false notion of making them tough and hardy. Equally unwise is it to confine colts to close, unventilated, and filthy stables, deprived of light, exercise, and pure air. They should be groomed every day; a clean skin favors the vitalization of the blood. They should be permitted to gambol about as much as they choose. Exercise develops muscle, makes an animal active and spirited, and increases the capacity of the lungs and chest. By the above means, and proper attention to the principles of breeding, the business of raising colts may become both creditable and profitable.

Colt—To Prevent from Jumping.

Pass a good stout surcingle around his body; put on his halter, and have the halter strap long enough to go

from his head, between his fore legs, then through the surcingle, and back to one of his hind legs. Procure a thill strap, and buckle around the leg between the foot and joint; fasten the halter strap in this—shorter or longer, as the obstinacy of the case may require. It is also useful to keep colts from running where there is likely to be danger from the result. If the thill strap should cause any soreness on the leg, it may be wound with a woolen cloth, and it would be well to change from one leg to the other occasionally.

Colt—Callus on.

Take 1 oz. of bitter sweet, 1 oz. of skunk cabbage, 1 oz. of blood root; steep and mix with lard; make an ointment, and apply once or twice a day. This is considered a sure remedy.

Horse's Cough.

Take powdered squills 1 oz., ginger 2 oz., cream of tartar 1 oz.; mix well, and give a spoonful every morning in bran. Another remedy is to give the animal a feed of sunflower seed.

Horses—Cribbing a Habit of.

There is supposed to be no remedy for this habit, but a person who has tried it says that a horse can be cured of cribbing by nailing a sheepskin, wool side up, wherever there is any chance for the horse to bite.

Horses—Distemper in.

The treatment of distemper should consist in good nursing rather than active or officious medication. In the first instance the animal should, if convenient, be removed to a loose box, with extra warm clothing, flannel bandages to the legs, deprivation of grain, warm mash, and a small quantity of damped hay. If the running at the nose is considerable, the throat very sore, and the cough troublesome, it will be advisable to wrap several folds of thick flannel around the throat, which should be kept constantly wet with al-

cohol, or weak camphor and spirit—that is, 1 part camphor dissolved in 16 parts alcohol. A dose of 4 drs. of ether nitrate or sulphate of potash, dissolved in the drinking water, may be given once or twice each day. Active stimulants, particularly blisters, are wholly inadmissible. Demulcent drinks, such as linseed tea, hay tea, or oat or cornmeal, are useful and often acceptable. The animal should remain quiet in his box until all irritation in his throat has completely passed away. Even when the horse is “convalescent,” the owner must not be in a hurry to get him into fast work, because the membrane of the larynx (upper portion of the windpipe) will continue to be for some time very susceptible of irritation and inflammation. In the advanced stages, if the debility is great and the appetite poor, much benefit is derived from the administration of tonics and stimulants. The following may be given daily: Iodide of iron 1 dr.; extract of gentian 4 drs.; mix to make 1 ball, or dissolve in a pint of ale and then give as a drink. In cases, however, which are progressing favorably, Nature better be left to herself, and tonics should only be resorted to when the symptoms really indicate the need of them.

Horses—Dressing Hoof in.

A good preparation, and one that will give the horse's hoof a rapid and healthy growth, is to take of oil of tar 1 pt., beeswax 1½ lbs., whale oil 4 pts. The above ingredients should be mixed and melted together over a slow fire, and applied to all parts of the hoof at least once or twice a week.

Horses—Eye, Inflammation of.

Keep the horse quiet, and dress the eye repeatedly with the following lotion: Take of tincture of opium 2 oz., and of water 1 pt.; mix. Much depends upon a proper application of the lotion, and a most advantageous pro-

ceeding is to attach several folds of linen rag to the headstall so as to cover the eye, and by being repeatedly saturated it will keep up constant evaporation, as well as a cooling effect. The horse should also be removed from excessive light. When the inflammation has been subdued, the opacity—more or less of which is sure to remain—must be treated by the application of either iodide of potassium or nitrate of silver, prepared thus: Take of iodide of potassium 20 grs; water 1 oz.; mix; or take of nitrate of silver 5 grs., distilled water 1 ounce; mix. To be applied daily by means of a camel's-hair brush saturated with the lotion and drawn gently across the eye.

Horses—Farcy, Boils or Ulcers on

In most cases farcy is indicated by the appearance of one or more pustules, which break into a very peculiar deep, abrupt ulcer, having thick inverted edges, which bleed freely on the slightest touch. The matter discharged from a farcy bud is either of a dirty, dingy yellow color or of a glue-like character; in either case it is offensive. Or it may be bloody or ichorous. In the latter case it abrades the surface on which it falls, or gravitates its irregular corded lines into the cellular tissues, and hence it helps to spread the disease. In other cases this complaint commences with a very painful swelling of the hind leg, followed by the peculiar intractable ulcers described above. In treatment, the horse should receive good care, fresh air, regular, moderate exercise, and be carefully kept apart from all others. Give daily in food for a fortnight 2 drs. of iodide of iron, 4 grs. of cantharides, with 2 drs. each of powdered ginger and aniseed. The ulcers or sores should be dressed daily with carbolic acid.

Horses' Feet—Contracted.

Horses which stand nearly or quite

the year round, sometimes from year to year in the stable, are apt to have the feet get into a dry and fevered condition, the hoof becomes dry, hard, and often contracted, frequently also very brittle, and the horse sometimes suffers lameness in consequence. One of the most effective means of remedying these difficulties, where the horse cannot be spared to be turned loose into pasture for quite a season, is in the spring, when the ground is breaking up, and the winter's frost disappearing and no lasting freeze is to be apprehended, to have all the shoes taken off and drive the horse daily about business as usual without them. The roads remain muddy and soft, usually, so that a horse may be thus driven daily for a period of 3 or 4 weeks and a great improvement is effected in the feet in every respect.

Horses—Foot Pumice for.

This is indicated by the hoofs spreading more and more and losing their shape. A properly constructed round (bar) shoe is the only reliable remedy, for it can be worn indefinitely without detriment to any part of the foot. The main object of treatment is to protect and preserve the deformed sole. The shoe must be chambered so as not to touch the sole, and no paring away of the latter must be allowed. Keep the feet clean and dry as possible.

Horse's Foot—Sand Crack in.

This, as its name imports, is a crack or division of the hoof from above downward, and into which sand and dirt are too apt to insinuate themselves. It occurs both in the fore and hind feet. In the fore feet it is usually found in the inner quarter, but occasionally in the outer quarter, because there is the principal stress or effort toward expansion in the foot, and the inner quarter is not so strong as the outer. In the hind feet the crack is almost invariably found in the front, because

in the digging of the toe into the ground in the act of drawing, the principal stress is in front. If the crack be superficial—does not penetrate through the horn—it will cause no lameness, yet must not be neglected. If the crack has extended to the sensible parts, and you can see any fungous flesh, with a small drawing knife remove the edges of the cracked horn that press upon it. Touch the fungus with caustic, dip a roll of tow or linen in tar, and bind it very firmly over it. The whole foot is to be kept in a bran poultice for a few days, or until the lameness is removed. A shoe may be then put on, so as not to press on the diseased part. The pledget of tow may now be removed, the crack filled with the composition, and the animal may be then turned into some soft meadow.

Horses, Founder'd—To Cure.

Clean out the bottom of the foot thoroughly, hold up firmly in a horizontal position, and pour in a tablespoonful of spirits of turpentine, if the cavity will hold that much; if not, pour in what it will hold without running over; touch the turpentine with a red hot iron (this will set it on fire); hold the hoof firmly in this position till it burns out, and care must be taken that none runs on the hair of the hoof, lest the skin be burned. If all the feet are affected, burn turpentine in all of them. Relief will speedily follow, and the animal will be ready for service in a short time.

Another.—The seeds of the sunflower—a pint of the whole seed—given in his feed, immediately the founder is discovered.

Another.—By standing the founder'd horse up to his belly in water.

Galled Shoulders or Back in Horses.

So soon as an abrasion is discovered on the back of a horse, the animal should be excused from duty for a few

days; the abraded parts should be dressed twice daily with a lotion of the tincture of aloes and myrrh. This simple treatment will soon heal the parts. Should there be no abrasion, but simply a swelling attended with heat, pain and tenderness, the part should be frequently sponged with cold water. Occasionally the skin undergoes the process of hardening (induration). This is a condition of the parts known to the farriers of old as "sitfast," and the treatment is as follows: Procure 1 oz. of iodine, and smear the indurated spot with a portion of the same twice daily. Some cases of galled back and shoulders are due to negligence and abuse; yet many animals, owing to a peculiarity of constitution, will chafe, as the saying is, in those parts which come in contact with the collar, and neither human foresight nor mechanical means can prevent the same.

Horses—Gravel in.

Steep $\frac{1}{2}$ lb. of hops in a quart of water, and give it as hot as the horse can stand it.

Horses—Grease in.

This is a white, offensive discharge from the skin of the heels. Wash the part well with warm soap-suds twice a day, and if the swelling be great apply a poultice to it; when the sores are cleansed touch them with a rag or feather dipped in a solution of chloride of zinc, 1 grain to the ounce of water.

Halter-pulling Horses.

A good way to prevent horses pulling at the halter, is to put a very small rope under the horse's tail, bringing the ends forward, crossing them on the back, and tying them on the breast. Put the halter strap through the ring, and tie to the rope in front of the breast. When the horse pulls he will, of course, find himself in

rather an uncomfortable position, and discontinue the effort to free himself.

Horse's Harness—Care of.

First take the harness apart, having each strap and piece by itself, and then wash it in warm soap-suds. When it has been cleaned, black every part with the following dye: 1 oz. extract of logwood, 12 grs. of bichromate of potash, both pounded fine; put it into 2 quarts of boiling rain-water, and stir until all is dissolved. When cool it may be used. You can bottle and keep for future use if you wish. It may be applied with a shoe-brush, or anything else convenient. When the dye has struck in, you may oil each part with neat's-foot oil, applied with a paint-brush, or anything convenient. For second oiling use one-third castor oil and double that quantity of neat's-foot oil, mixed. A few hours after wipe clean with a woolen cloth, which gives the harness a glossy appearance. The preparation will not injure the leather or stitching, makes it soft and pliable, and obviates the necessity of oiling as often as is necessary by the ordinary method.

Horses—Heaves in.

This disease is indicated by a short, dull, spasmodic cough, and a double-jerking movement at the flank during expiration. If a horse suffering from this disease is allowed to distend his stomach at his pleasure, with dry food entirely, and then to drink cold water, as much as he can hold, he is nearly worthless. But if his food be moistened, and he be allowed to drink a moderate quantity only at a time, the disease is much less troublesome. To cure this complaint, feed no hay to the horse for 36 or 48 hours, and give only a pailful of water at a time. Then throw an armful of well-cured smart weed before him, and let him eat all he will. In all cases where the cells of the lungs are not broken

down, great relief, if not a perfect cure, will follow. Another remedy is sunflower seed, feeding 1 or 2 quarts of the seed daily.

Horses—Hide-bound.

To recruit a hide-bound horse, give nitrate potassium (or saltpetre) 4 oz., crude antimony 1 oz., sulphur 3 oz. Nitrate of potassium and antimony should be finely pulverized, then add the sulphur, and mix the whole well together. Dose—A tablespoonful of this mixture in a bran mash daily.

Horses—Hoof-bound.

Cut down several lines from the coronet to the toe all around the hoof, and fill the cuts with tallow and soap mixed; take off the shoes, and (if you can spare him) turn the animal into a wet meadow, where his feet will be kept moist. Never remove the sole nor burn the lines down, as this increases instead of diminishing the evil.

Horses' Itch.

To cure a horse affected with itch, first reduce his daily allowance of food, putting him on a low diet, and then give him a teaspoonful of a mixture of equal parts of sulphur and antimony, and at the end of a week or 10 days the sores will have disappeared, and the horse will be covered with a fine coat of new hair.

Horse's Kidneys—Inflammation of (Nephritis).

Symptoms: Gradual loss of flesh, pain across the back, impaired action of the hind extremities, and the frequent passing of urine, which is very highly colored. In treating this affection, the horse should be allowed perfect rest, and he should also have a generous diet of easily-digested food, and plenty of mucilaginous drinks. The loins may be rubbed every third or fourth day with mustard, and 1 drachm of tartar emetic given every night.

This medicine can be conveniently administered mixed with the food.

Horses—Kicking in Stall.

To prevent your horse from kicking in the stall, fasten a short trace-chain, about 2 feet long, by a strap to each hind foot. A better way is to have the stalls made wide enough so that the horse can turn in them easily. Close them with a door or bars, and turn the animal loose. After a while he will forget the habit, and stand tied without further trouble.

Horses—Lampas in.

This consists in a swelling of the first bar of the upper palate. It is cured by rubbing the swelling two or three times a day with $\frac{1}{2}$ an ounce of alum and the same quantity of double refined sugar mixed with a little honey.

Horse's Legs—Inflammation and Swelling of.

Rest and the application of an active blister to the swollen parts will effect a cure. No better blister can be used than the following: Take resin and black pitch each 4 parts, beeswax 3 parts, sweet oil 11 parts, Spanish flies 6 parts, euphorbium 2 parts. Melt the resin, pitch and wax first, then add the oil, and when thoroughly mixed remove from the fire; lastly, add very slowly the powdered flies and euphorbium. Before the blister is applied the hair should be cut close off, and the skin, if scurfy, washed with Castile soap and warm water, after which it must be thoroughly dried, and the blistering ointment rubbed in for ten minutes. After applying the blister, the horse's head should be tied up to prevent his biting the part, or rubbing it with his nose. At the expiration of two or three days most horses may be set at liberty. In about a week rub sweet oil over the blistered part.

Horses' Legs—Broken, to Cure.

Instead of summarily shooting the horse, in the greater number of fractures it is only necessary to partially sling the horse by means of a broad piece of sail or other strong cloth, placed under the animal's belly, furnished with 2 breechings and 2 breast-girths, and, by means of ropes and pulleys attached to a cross beam above, he is elevated or lowered, as may be required. By the adoption of this plan every facility is allowed for the satisfactory treatment of the fractures.

Horse Liniment—For Bruises, Sprains, Etc.

Take 1 pint of alcohol, 4 oz. of Castile soap, $\frac{1}{4}$ oz. of gum camphor, $\frac{1}{4}$ oz. sal ammoniac. When these are dissolved, add 1 oz. of laudanum, 1 oz. organum, $\frac{1}{2}$ oz. oil of sassafras, and 2 oz. spirits of hartshorn. Bathe freely.

Horse Liniment—Nerve and Bone.

Take beef's gall 1 qt., alcohol 1 pt., volatile liniment 1 lb., spirits of turpentine 1 lb., oil of origanum 4 oz., aqua ammonia 4 oz., tincture of Cayenne $\frac{1}{4}$ pt., oil of amber 3 oz., tincture of Spanish flies 6 oz. Mix.

Horse—Condition Powders for.

2 oz. resin, 2 oz. saltpetre, 2 oz. black antimony, 2 oz. sulphur, 2 oz. saleratus, 2 oz. ginger, 1 oz. copperas. 1 tablespoonful to a dose once a day for 3 days, then skip 2 or 3 days, and give again until you have given in this way nine doses, or even more if you like. It should be given in the spring and fall, or at any time when the animal is not doing well.

Horse—Cleansing Powders for.

Take of ginger 2 oz., 4 oz. fenugreek, 1 oz. black antimony, and 2 oz. rhubarb. Grind all fine, mix it well, and it is fit for use. Give a large spoonful every morning and night. It gives a good appetite, and fine coat and life to the animal.

Horses—Medical Doses for the—BY DR. KENDALL

Name of Drug.	Action and Use.	Dose.	Antidote.
Aloes.	Laxative and Tonic.	1-2 to 1 oz.	
Alum.	Astringent.	2 to 3 drs.	
Anise Seed.	Aromatic and Stomachic.	1-2 to 2 ozs.	
Aqua Ammonia.	Stimulant and Antacid.	1 to 4 drs.	Vinegar.
Arsenic.	{ Alterative and Tonic. Used for Paralysis, Mange, etc. }	1 to 5 grs.	Magnesia and Oil.
Asafoetida.	Anti-spasmodic Coughs, etc.	1 to 3 drs.	
Bicarbonate of Potash.	{ Diuretic and Antacid. Good for Rheumatism. }	3 to 5 drs.	{ Vinegar and raw Linseed Oil. }
Bismuth.	For Chronic Diarrhœa, etc.	1-2 to 1 oz.	
Black Antimony.	Promotes the Secretions.	1-4 to 1-2 dr.	{ Infus'n of oak bark. Give also lins'd oil. }
Blue Vitriol.	Astringent and Tonic.	1-2 to 1 dr.	Eggs, Milk, etc.
Calomel.	Cathartic.	10 to 40 grs.	Eggs and Milk.
Camphor.	Anti-spasmodic.	1-2 to 1 dr.	
Cantharides.	Diuretic and Stimulant.	3 to 6 grs.	Eggs; soap; gruel.
Carbolic Acid.	Externally, and Disinfectant.		
Castor Oil.	Cathartic.	1-2 to 1 pt.	
Cayenne.	Stimulant and Carminative.	5 to 25 grs.	
Chlorate of Potash.	{ Diuretic. Given for Bloating, etc. }	1-2 to 2 drs.	
Copperas.	Tonic and Astringent.	½ to 1½ drs.	Opium.
Croton Oil.	Powerful Purgative.	10 to 15 d'p's.	Stimulate.
Digitalis leaf.	Sedative and Diuretic.	10 to 20 grs.	
Epsom Salts.	Cathartic and Febrifuge.	2 to 8 ozs.	
Ether.	Anti-spasmodic.	1-2 to 2 ozs.	
Fowler's Solution.	{ Used for Skin diseases. See Arsenic. }	1 to 4 drs.	{ Hydrated peroxide of Iron. }
Gentian Root.	Tonic.	1 to 2 drs.	
Ginger.	{ Tonic, Stimulant and Stomach- ic. Used for flatulent Colic, Dyspepsia, etc. }	2 to 5 drs.	
Glauber's Salts.	Cathartic.	6 to 12 ozs.	
Iodide of Potassium.	{ Diuretic and Alterative. Used for Rheumatism, Dropsy, En- larged Glands, etc. }	1-2 to 1 1-2 drs.	{ Give freely starch or flour, with water largely. }
Linseed Oil, Raw.	Cathartic and Nutritive.	1 to 2 pts.	
Magnesia.	{ For colts as an Antacid and Laxative. }	1-4 to 1 oz.	
Mercurial Ointment.	{ Used for Mange, Itch, Lice, and other parasites. }		{ Whites of Eggs with milk given freely. Saleratus, followed quickly by coperas, both dissolved in water. Belladonna, strong coff'e, brandy and ammonia. Dash cold water on, and keep the horse moving,
Nux Vomica.	{ Nervous Stimulant. Used for Paralysis. }	15 to 25 grs.	
Opium.	{ Anodyne and Anti-spasmodic. Given in Colic, Inflammation of Bowels, Diarrhœa, etc. }	1-4 to 1 dr.	
Prepared Chalk.	Antacid.	1-2 to 1 oz.	
Quinine.	Tonic. Given during convalescence.	15 to 50 grs.	
Saltpetre.	Diuretic and Febrifuge.	1 to 3 drs.	
Soda Bicarb.	Similar to Bicarb. Potash.	3 to 8 drs.	{ Linseed Oil largely. Raw. }
Soda Sulphite.	{ Antiseptic and Alterative. Used for Blood diseases. }	1-2 to 1 oz.	
Solution of Lime.	Antacid, used as an antidote to poisoning by acids.	4 to 6 ozs.	
Spirits of Chloroform.	Anodyne and Anti-spasmodic.	1 to 2 ozs.	
Strychnia.	{ Tonic and Stimulant. Used for Paralysis. }	1-2 to 1 gr.	Tobacco.
Sulphur	{ Alterative and Laxative. Used for Skin diseases and Rheu- matism. }	1-2 to 2 ozs.	
Sweet Spirits of Nitre.	Diuretic and Diaphoretic.	½ to 1½ ozs.	
Tannic Acid.	Astringent.	20 to 40 grs.	
Tartar Emetic.	Sedative and Alterative.	1-8 to 1-2 dr.	Tannic Acid.
Tincture of Ac- onite Root.	{ Sedative, Used for Lung fever, etc. }	15 to 35 d'p's	{ Give small doses of Nux Vomica, and stimulants largely and keep moving. }
Tincture of Can- tharides.	Stimulant and Tonic.	1 to 2 ozs.	
Tincture Ergot.	Parturient.	1 to 2 ozs.	
Tincture Iodine.	Used externally.		
Tincture Iron.	{ Tonic and Astringent. Used for Typhoid diseases. }	1-2 to 1 oz.	
Tr Nux Vomica.	{ Tonic. Stimulant in Paralysis and Dyspepsia. }	2 to 4 drs.	See Nux Vomica.

Horses—Medical Doses for the—BY DR. NENDALL

Name of Drug.	Action and Use.	Dose.	Antidote.
Tincture Opium.	Anodyne and Anti-spasmodic.	1 to 2 ozs.	See Opium.
White Vitriol.	{ Astringent. Used for cuts, } { wounds, and sores, in solution. }	5 to 15 grs.	{ Milk, Eggs and } { flour. }

For a colt one month old, give one twenty-fourth of the full dose for an adult horse as given above; three months old, one-twelfth; six months old, one-sixth; one year old, one-third; two years old, one-half; three years old, three-fourths.

IN MEASURING MEDICINES.

A tablespoonful is equal to half an ounce by measure.

A dessert-spoonful is equal to one-fourth ounce, or two drachms.

A teaspoonful is equal to one drachm.

A teacup is estimated to contain about four fluid ounces, or a gill.

A wine glass about two fluid ounces.

The above named household implements vary in size and capacity, so that usually it is difficult to measure with them accurately; yet, for nearly all medicines, it will be near enough for all practical purposes, excepting some teacups are now made to hold six or eight ounces, so that, if the medicine to be measured is poison, it is well to give smaller doses if the exact capacity is not known. It is best for those having much use for measures to procure a glass graduate which will measure drachms and ounces.

Horse Pneumonia, Acute—

Symptoms.

They are first taken with a dry, depressed cough, loss of appetite, but thirsty; pulse feeble, but frequently the extremities are cold—sometimes when first taken; at others they retain their natural heat until the disease assumes its worst appearance, and then the legs become cold. Respiration is very active and laborious; the animal pants all the time, stands with fore legs widely separated, never lies down, and is loth to move. Some discharge copiously from both nostrils a thick, slimy matter, sometimes mixed with blood—in that case the whole body is excessively hot, and the extremities also, but other symptoms the same. The treatment in the early stage of this disease should be: 1. An abundant supply of cool, fresh air. 2. Abstinence from grain or corn. 3. Extra clothing and warm bandages to the legs. In all cases it is desirable that the patient should at once be removed to an airy, loose box. If these simple remedies do not bring about a subsi-

dence of the attack within a short time, recourse must be had to medical treatment.

Horses—Ringbone in

This disease is generally caused by heavy draught, especially in up-hill work. The first appearance of the complaint is indicated by a hard swelling upon the top of the fetlock or pastern joint, accompanied by tenderness, pain, heat, etc. Cooling appliances, such as cold water, soap, camphor, etc., with a little laudanum, should be promptly applied, giving the animal perfect rest, with green food or roots in connection with hay—no grain. This may be followed by some convenient preparation of iodine, like an ointment of iodide of lead and lard. Rub in the ointment well, follow up the treatment for several weeks. If the case is an obstinate one, try blistering with cerate of cantharides, continuing, at intervals, the use of the iodine. Equal parts of turpentine and kerosene would, no doubt, form a most excellent wash—

the crude coal oil would be better than that which has been refined. Rub it well into the hair around and above the hoof.

Ringbone Remedy.

Take one-half pint spirits of turpentine, one-half oz. blue stone, $\frac{1}{2}$ oz of red precipitate. Shake well and use every morning; and keep the hoof well greased. This will not only take off the hair, but cause a severe blister. After healing, if there still signs of lameness, repeat the remedy.

Horses—Ringworm in

Wash the parts with a very strong infusion of bayberry bark, wipe dry, and then smear the denuded spots with a mixture of 4 oz. of pyroligneous acid and 1 oz. of turpentine, the washing and dressing to be repeated until healthy action is established. If the disease does not readily disappear, give sulphur, cream of tartar and sassafras, equal parts, in a dose of 6 draehms daily. If the disease still lingers, sponge the denuded parts with tincture of muriate iron.

Horses—Roaring in

This is a loud sound which some horses emit during the act of breathing, and is caused by a diminution in the diameter, or by a distortion of the windpipe, or by a wasting of the muscles of the larynx, and imperfect opening of the latter. It is incurable.

Horses—Runaway, To Prevent Injury from.

This can be done by electricity. A dry battery can be purchased in a small case. Let one of these be fixed in an out-of-the-way nook in the carriage, 2 wires to hook to harness, beneath which have 2 very thin copper plates properly placed. In the event of a runaway, the driver and inside occupants will only have to press a glass knob to stop instantly the mad career of the strongest horses.

Horses—Rupture in.

Rupture or hernia is the protrusion of a bowel; or some other part, from its proper cavity. It is sometimes congenital, and then may be reduced at the same time that castration is performed. At other times rupture may be produced by blows, kicks or falls. A hernia is dangerous to life when it becomes compressed or strangulated by a stricture at the orifice of protrusion. Skillful surgical aid should always be obtained in any such case at once. But sometimes, in the absence of a veterinarian, any one may restore the gut by introducing the hand into the bowel and drawing it up; the other hand, at the same time, making gentle pressure upon the swelling in the abdomen. No violence should ever be used in attempting this; and the bowels should first be emptied by a clyster.

Horses—Scratches in.

If a horse's blood is pure, he will not have the scratches. Give him a tablespoonful of saltpetre every day for fifteen days, and be careful about his taking cold while feeding it. It opens the pores so that he will take cold very easily. Along with this take pure, dry white lead, pure oxide of zinc, and glycerine, of each $\frac{1}{2}$ an ounce; fresh lard (free from rancidity) $1\frac{1}{2}$ ounces. Mix the white lead, pure oxide of zinc and glycerine to a uniform, smooth paste, then add the lard a little at a time, till a uniform, smooth ointment is formed. Wash the parts with Castile soap and water, and dry with a cloth, then apply the ointment two or three times daily, with the fingers. Wash once in two or three days, and dry the spot well before dressing again.

The horse should stand on a plank floor kept clean and dry, and if used all dust, sand and dirt should be washed off so that the affected parts may remain clean. If these directions

are strictly carried out, it will seldom, if ever, fail to cure the very worst cases within a reasonable time.

Horses—Shoeing.

Few horseshoers understand thoroughly the anatomy of the horse's foot. The great mistake is made in attempting to trim the hoof to fit the shoe, whereas the shoe should be made to fit the hoof. Very little trimming is needed if the shoe is made right. The frog should never be touched by the buttress, if the foot is healthy, as Nature has intended that to be the spring or cushion to first receive the blow when the foot is set down on the road, to guard the knee and shoulder from the concussion.

Nothing can be more barbarous than the carving and cutting of a horse's foot before shoeing, though on his skill in this many a farrier prides himself. The idea that the frog must not be allowed to bear on the ground—that the sole must be thinned till it "springs on the thumb," is a most pernicious one.

As you value your horse, do not let the blacksmith even scrape the dirt off the frog. It would be better if he could not see it, because, if anything fit to be called a frog, he will beg, argue, and try every means to persuade you to let him cut it. Do not turn your back to him while he has the foot in his lap and knife in his hand, or else off comes a portion of frog. If the frog is left to itself it will, when Nature gets ready, shed itself; but the difference between shedding and cutting, is that before shedding, the under frog is protected by a suitable covering, but when cut it is exposed to the action of the air and water, which causes it to crack, leaving those "rags" which the blacksmiths love so well to cut. Do not open the heels, as it increases the resistance offered to contraction.

The Summer Shoe needs to present a flat surface to the ground. Make it of the same width and thickness from the toe to the heel. Have the seating deep, so as to prevent the sole pressing upon the shoe as it descends. Have a clip at the toe to prevent the shoe slipping back, but none at the sides, as they not only destroy too much of the hoof, but prevent expansion. Have the fullering deep to receive the nail heads, and have the nail holes straight—neither inclined inwardly or outwardly. Have only five nails to hold on the shoe—two on the inner, and three on the outer side. Place the two on the inner side about $1\frac{1}{2}$ inches from the top; those on the outside may be placed further back toward the heel. The reason is, that when the foot strikes the ground it expands to relieve the horse of the shock of his weight, and the inner side being thinner than the outside, the expansion is greater. By placing the nails far back we prevent that expansion, thereby cramping the foot, which makes the animal step short and quick, like one with tight boots. If we take an old shoe, we find at the heels that it is worn down, and also that it is smaller and bright, which is not done by the shifting of the shoe, as you only find it at the heels, by the action of the foot while expanding and contracting. Of course, this action wears upon, but the foot is continually growing.

Fitting the Shoe.—On fitting the shoe do not let it burn the foot, as it makes a strong foot brittle, and on a weak one hurts the horse. Be sure it fits close to the foot. Bring in the heels, as they do not, but the nails do prevent expansion. Do not get the nails larger than necessary; bring them out low down in the crust, and make the clinchers very broad. Rasp below but not above the clinchers, as the foot above is covered—if healthy—

with a varnish which excludes the air and water.

The hind shoe need not be so broad, but a little higher at the heels. In this put seven nails, as the hind legs propel and the front legs receive the weight.

The winter shoe needs toe and heel pieces to prevent the horse from slipping. Have the inner calk not quite so sharp as the outer one, so that if he steps upon the other foot it will not cut it.

The outside of the hoof ought not to be at all touched by the rasp, save at the very edge, as rasping tends to thicken the hoof and make it coarse and clumsy. Shoes should be made just as light as they possibly can be to answer the purpose. Ordinarily they are one-third too heavy. A horse's hoof should be carefully cleaned every day, and oiling the hoof once or twice a week is recommended.

Horses—Spavin.

Take $\frac{1}{2}$ oz. oil of amber; 1 oz. oil of spike; 2 oz. spirits of turpentine; $\frac{1}{4}$ oz. nitric acid. The acid must be put into the bottle last. Apply this mixture thoroughly, and—though it will not remove the bunch—the lameness will generally disappear. If the horse is over four years old, you will fit a bar of lead just above it, wiring the ends together so that it will constantly bear upon the enlargement, and the two together will cure nine cases out of every ten in six weeks.

Horses—Spavin Cure.

Take 1 oz. of organum oil; 1 oz. of British oil; 1 oz. of oil of spike, 1 oz. oil of wormwood; 1 oz. gum myrrh; 1 gill of alcohol. Put the oils together; put the gum in the alcohol, and let it stand for twenty-four hours, and then add it to the oils; shake well before using; apply it to the parts affected and rub it in well with the hand, or, heat it in with a hot iron. If it is

applied for a sprain, use it morning and evening. Wash clean once in three days.

Horses—Splint in.

When a splint does not occasion lameness it need not be interfered with. To cure, take volatile liniment to which add one drachm of oil of organum. Apply this thoroughly twice a day, followed by rubbing the splint with a round pine or bass wood stick, as hard as can be done without abrading the skin. This treatment should be continued several weeks, when it will be discovered that the splints will grow less and finally disappear.

Horse—Sprains, General Treatment of.

Rest is the first requirement. Next apply wet bandages until the heat is abated, and until there is no pain or pressure; then rub with some simple ointment.

Horses—Staggers in.

This is a functional disorder of the brain, which, when once it has declared itself, is said to be beyond cure. The following prescription may be tried. Give a mess twice per week composed of 1 gal. of bran; 1 tablespoonful of sulphur; 1 spoonful of saltpetre; 1 quart of boiling sassafras tea; $1\frac{1}{4}$ oz. asafoetida. Keep the horse from cold water for half a day afterwards.

Horse's Throat—Strangles in.

Feed with light, cooling (green if it can be had) food; mix the food with sassafras tea, in which a spoonful of powdered sulphur and a teaspoonful of saltpetre have been added.

Horse—Sweeny in.

A horse is said to be sweenied when the muscles of the shoulder appear to have withered away, and the skin seems to be attached closely to the shoulder blade. These symptoms may arise from chronic lameness in the foot

or other part of the limb. In such case, of course it is of no use to apply remedies to the shoulder. Cure the foot, and the shoulder will come right, although stimulants and rubbing will expedite it. But genuine sweeny is quite different from the above, although the appearances are the same. It is caused by hard drawing in a collar that is too large; or where no whiffletree is ever used, but the traces are hitched directly to the thills, as in "jumpers," as they are called; or by jumping fences, or the like. The presence of real sweeny may be discovered by moving the horse in a circle, or causing him to step over the bars, when you can generally determine the seat of the lameness. For such cases irritants with friction, is the proper treatment. Blistering liniment, or seton, or a piece of leather inserted under the skin, will cure, with rest.

Horse—Taming and Training.

Many persons pay for instructions in training horses, and yet they nearly all fail, simply because, with all the instructions in the world, they cannot handle a horse—it is not in them. To be a successful trainer you must have a sympathy with the horse and a personal power of control. That which partakes of the power necessary to subdue and train, you will find in your own mind, your own love, will, and wisdom. If you have little or no instinctive love for the horse, of course you are not the person to control him. Men and women are often found who are said to have the natural gift of controlling the horse; they love horses from instinct, as it were. The secret in these cases consists in their intense love for the horse. If you love the horse, you will, you can but know how to make the horse love you. Love, in all grades of animals, has its appropriate language; and when this language is addressed to the horse it

excites love, of course. A blow with a whip or club does not come from love, but from combativeness, and it excites combativeness or fear in the horse. If you want to make a horse love you, (and you must cause him to love you if you control him), why of course you must love him and treat him accordingly. Study the character of your horse—not the nature of horses in general, but of the horse that you wish to control. Horses differ in their dispositions as really as men do, and each one is to be approached, attracted, pleased and controlled accordingly.

Horse—To Make Him Lie Down.

First, catch your horse, then strap the near fore leg up round the arm of the animal; lead him about on three legs until he becomes tired or weary; he will then allow you to handle him anywhere; then attach a strap with a ring to the off fore-fetlock; to this ring fasten another strap, which being brought over the horse's back to the near side, is put through the ring on the off fore-fetlock; return the end of the strap to the near side, still keeping fast hold, and move the animal on, and pull; he will then be thrown upon his knees, when after struggling for some time by gentle usage he will lie down. After unloosing the straps, put him through the same process as before, when the horse will lie down whenever required. Uniformity is necessary in our method. It is by the repetition, by the constant recurrence of certain motions, words or actions, that we succeed. Many fail for the want of uniformity in their method. They are loving and kind by spells; then they are harsh and cruel. The horse is "impressed," as it is said, with his master's wishes, when those wishes are often and uniformly expressed in motions, words and actions. If man needs "precept upon precept,

line upon line," etc., in order to learn his lessons well, how much more true is this of the horse, which is below man in consciousness and the reflective faculties.

Horse—Teaching Him to Pace.

Buckle a four pound weight around the ankles of his hind legs (lead is preferable); ride your horse briskly with these weights upon his ankles, at the same time twitching each rein of the bridle alternately; by this means you will immediately throw him into a pace. After you have trained him in this way to some extent, change your leaded weights for something lighter; leather padding, or something equal to it, will answer the purpose; let him wear these light weights until he is perfectly trained. This process will make a smooth and easy pacer of any horse.

Horse—To Make Him Trot.

The secret consists in using rollers on the front feet. These rollers are made of pieces of wood or horn turned round, as big as a hickory nut, with a gimlet hole bored through the center of each, and about twelve of them strung on a string or narrow strap, which should be much smaller than the hole, and then tied or buckled very loose around the fet-lock joint next to the hoof, so that they will play loose up and down when the horse is in motion. As soon as the horse finds something on his feet, he will lift them up higher and throw them out further and handsomer; this he will soon learn permanently. Another secret is that a small or medium sized flat is the best, and far superior to the track system for teaching the horse or colt to gather quickly. A very light skeleton or gig should be used in training.

Horse—To Sit on His Haunches.

First teach the horse to obey you, so that when you say "Ho!" he will

remain still. Then, having taught him to lie down, let him get up on his fore legs, and then stop him. The horse gets up in this way, and you have only to teach him to hold his position for a while. It does not strain the horse to sit, and you must always use the word "sit" in connection with the feat. Also the word "down" when you wish him to fall.

Horse—To Make Him Follow You.

Take your horse to the stable, put on a surcingle and a bridle with short reins, which may be checked up a little and fastened to the surcingle. Then lead him about a few times, and letting go the bridle continue to caress him, as you constantly say, "Come along." If he lag give him a light cut behind with a long whip. Continue this until you succeed. Do not forget the element of "love" in this as well as other feats.

Horse—To Teach Him to Pick Up a Handkerchief.

Spread on the sawdust a white cloth containing a liberal supply of oats; lead the animal round the ring, and let him take some of the oats. This is lesson No. 1—its object being to fix in the horse's mind a connection between the cloth and the oats. The march round the circle being once or twice repeated, he stops at the handkerchief as a matter of course. By dint of practice—say a couple of weeks—he will learn to stop as readily in a trot or a gallop as in a walk. After a time the handkerchief must be doubled over and tied in a knot; the animal shakes it to get at the grain, but not succeeding, lifts it from the ground, which is just the thing wanted. When the horse has done this a few times, and finds that, though he can shake nothing out, he will receive a handful of oats as a reward, he may be trusted to

perform in public. The last step of all—persuading the horse to carry the handkerchief to his owner—is easily done. Of his own accord he will hold the cloth till it is taken from his mouth and there will be little difficulty in coaxing him to walk a few steps—when he knows that he will get a handful of oats or a carrot for his obedience.

Horse—Teaching Him to Walk.

For every-day use, the most economical gait for a horse is a fast walk; and yet not half the thought is given to this essential that there is to other things that secure to the horse a name, rather than intrinsic value. Colts can be taught to walk fast by following them for a half day together (some one leading) with a small switch, starting them, when inclined to go slow, into a quicker pace. After they are harnessed keep fast walking in mind, and when on level ground, or going up a hill with a very light load, urge them to their utmost, until 4 miles an hour becomes a habit.

Horse—Teaching Him to Stand.

Take your horse on the barn floor, and throw a strap over his back and fasten it to his right forefoot; lead him along and say "Whoa," and at the same time pull down the strap, which will throw him on three feet, and make him stop suddenly. This is the best way known to teach "Whoa," though you can put on the war bridle, and give him a sharp jerk that will stop him about as soon as the strap to his foot. Then put him in harness, with the foot strap, as directed under the head of "Training to Harness," and drive him up to the door. The moment he undertakes to move, take his foot and say "Whoa." Get in your carriage and get out again; rattle the thills; make all the noise getting in and out you can; give him to understand, by snatching his foot each time he moves, that he must stand until you tell him to go; and after a

few times you can put the whole family in the carriage, and he will not stir out of his tracks.

Horse-Taming—Preparation for.

Take finely grated horse castor, and oils of rhodium and cummin, keep these in separate bottles, well corked; put some of the oil of cummin on your hand, and approach the horse on the windy side. He will then move toward you; then rub some of the cummin on his nose; give him a little of the castor on anything he likes, and get 8 or 10 drops of the oil of rhodium on the point of his tongue; you can then get him to do anything you please. Follow up your advantage by all the kindness and attention possible toward the animal, and your control is certain.

Horse's Tendons Contracted.

First try the effect of lowering the heels a little more than the toe at each shoeing, and applying a shoe with a plate projecting an inch or two in front of the toe. If there is much tenderness of the back sinews on pressure, this form of shoeing must be avoided until that has been removed. The thickened tendons must be rubbed daily with a mixture of equal parts of strong iodine ointment and blue ointment, until blistering takes place, when it may be discontinued until the effects have passed off. The horse should have a yard or small paddock to run in where he is not very likely to be excited to vigorous or irregular action, or, if kept indoors, let it be in a roomy box, and give a moderate amount of walking exercise daily. Should several months of this sort of treatment fail to restore in part, it may be advisable, perhaps, to have the back sinews cut through.

Horses—Thrush in.

This is a discharge of very offensive matter from the cleft of the frog. It is inflammation of the lower surface

of the sensible frog, and during which pus is secreted together with, or instead of, horn. In its treatment, almost any astringent substance will check thrush in its early stage. Tar and common salt mixed are a very good application, and tar and sulphate of zinc can also be highly recommended. Before the introduction of either of these preparations, the frog should be carefully inspected and all decayed parts removed. The dressing must be pressed to the bottom of the cleft and commissures of the frog, and this should be repeated every other day or twice a week.

Horse-dealers—Tricks of.

Unless a man is accustomed to horses, it is the greatest folly in the world to depend upon his own knowledge in purchasing them, for there is a class of men who make their living by bringing up horses with all manner of defects, which their art enables them to disguise just as long as is sufficient to take in their dupes. In buying as well as selling are these deceptions practiced. A few of these "tricks" are as follows:

To Make a True-pulling Horse Balk.—Take tincture of cantharides 1 oz. and corrosive sublimate 1 dr. Mix, and bathe his shoulders freely at night.

To Make a Horse Appear as if Lame.—Take a single hair from the tail; put through the eye of a needle; lift the front leg, and press the skin between the outer and middle tendon or cord; shove the needle through; cut off the hair on each side, and let the foot down; the horse will go lame in 20 minutes.

To Make a Horse Stand by His Food and Not Eat It.—Grease the front teeth and the roof of the mouth with common beef tallow, and he will not eat till you have washed it out.

To Make a Horse Appear as if Badly Foundered.—Take a fine wire and fasten it tightly around the fetlock, between the foot and heel, and smooth the hair over it. In 20 minutes the horse will show lameness. Do not leave it on over 9 hours.

To Cure a Horse of Cribbing or Sucking Wind.—Saw between the upper teeth to gums.

To Cover Up the Heaves.—Drench the horse with $\frac{3}{4}$ lb. of common bird shot, and he will not heave until they pass through him.

To Make a Horse Appear as if He Had the Glanders.—Melt 4 oz. of fresh butter, and pour it into his ear.

To Nerve a Horse that is Lame.—Make a small incision about half way from the knee to the joint on the outside of the leg, and at the back part of the shin bone you will find a small white tendon or cord; cut it off and close the external wound with a stitch, and he will walk off on the hardest pavement and not limp a particle.

To Disguise Lameness.—When a horse goes dead lame in one shoulder, it can be disguised by creating a similar lameness in the corresponding leg, by taking off the shoe and inserting a bean between it and the foot.

To Put Black Spots on a White Horse.—Take of powdered quicklime $\frac{1}{2}$ a lb. and litharge 4 oz. Well beat and mix the litharge with the lime. The above is to be put into a vessel, and a sharp lye is to be poured over it. Boil and skim off the substance which rises on the surface. This is the coloring matter which must be applied to such parts of the animal as you wish to have dyed black.

To Produce a Star on a Horse.—Take a piece of coarse tow linen, the size of the wished-for star; spread on it warm pitch, and apply it to the shaved spot; leave it on for 2 or 3 days, when wash with a little arse-smart

water or elixir of vitriol 2 or 3 times a day until well. When the hair grows it will be white.

To Make an Old Horse Appear Young.—This is done by filing down the teeth, the dark markings on which are removed by a hot iron; filling up the depressions over the horse's eyes, by puncturing the skin over the cavity, and filling through a tube by air from the mouth, and then closing the aperture, when the brow will become smooth—for a time. The white hairs are painted out, when the animal will altogether have a youthful appearance.

Horses—Urine Stoppage of.

Symptoms: Frequent attempts to urinate, looking round at his sides lying down, rolling and stretching. To cure, take $\frac{1}{2}$ lb. hops, 3 drs. oil of camphor; grind and mix. Make this into 3 pills. Give 1 every day, with a drench made of a small spoonful of saltpetre and 2 oz. of water. This will cure, as a general thing.

Horses—Warts, To Cure, in.

The safest and most effectual caustic for destroying warts is chromic acid. Having first picked off the rough outer surface of the warts so as to make them bleed, apply, by means of a small wooden spatula, a little of the dry acid, rubbing it well in. This will cause a free discharge of watery fluid from the surface. In a few days the wart is converted into a tough, leather-like substance, which ultimately falls off, generally leaving a healthy sore, which soon heals.

Horses—Warts on Nose.

Dissolve $\frac{1}{2}$ lb. of alum in a quart of water; with a brush or cloth wet the warts twice each day for 4 days, and they will disappear. Another remedy is to smear the warts with salted butter.

Horses—Water Farcy in.

Symptoms: The horse is dull and loses his appetite, and swells along the belly or chest and between the fore legs. To cure: Rowel in the breast, and along each side of the chest, as far as the swelling goes. Leave the rowels in until the swelling goes down. Give a spoonful of cleansing powders morning and night.

Horses—Wen, to Cure a.

Take equal parts of soft soap and slaked lime, well mixed. Lance the wen at the time of making the application, or two or three days after. Two or three applications will cure.

Horses—Wind Galls in.

Wind galls are puffy swellings above and behind the fetlocks, caused by the enlargement of the sheathes through which the tendons pass. In recent cases nothing further is required than rest, aperient medicine, and wet bandages wrapped firmly around the swellings. It may also be advisable to remove the shoe and shorten the toe to remove the tension of the tendons. When there is lameness, and the swelling is indurated, hot fomentations for several hours a day, or poultices, should be applied. A woolen bandage should afterwards be applied, and camphorated spirits well rubbed in daily.

Horses—Wind in, to Improve.

It will be found, if tar water and powdered charcoal are mixed with the horse's feed, that it will have most beneficial effect on his wind and condition.

Horses—Worms in.

Give every morning, one hour before feeding, 3 drs. of sulphate of iron and 2 drs. of asafœtida; and every night, for a week, throw up an injection of 1 oz. oil of turpentine and 10 oz. of linseed oil. Green food is to be preferred.

Another.—White-ash bark burnt to ashes and made into rather a very strong lye; then mix $\frac{1}{2}$ pt. of it with 1 pt. of warm water, and give all 2 or 3 times daily.

Horse-power

Is ascertained by finding what weight the animal can raise, and to what height in a given time, it being supposed to pull horizontally. At an average, a horse can raise 160 lbs. weight at a speed of $2\frac{1}{2}$ miles per hour. Horse-power is made the actual standard for estimating the power of a steam-engine. The estimate given is based on the work of London dray-horses, and it is considered too high, 17,400 foot-pounds per minute being the general estimate. One horse-power of machinery is nearly equal to 4.4 horses, as they vary when tired.

Horse-radish.

For the cultivation of this vegetable the soil should be deep and moist. Cut off slips from a root with a little of the crown and plant 3 or 4 inches deep in rows, if for field culture, so as to admit of handy working. If in a garden it matters little whether in rows or not, as it soon sprouts up in every direction. Unless the whole crop is removed the bed will supply itself year after year, and a plat 10 feet square will be enough for an ordinary family.

Hose (Rubber)—To Mend.

Cut the hose apart where it is defective; obtain, from any gas-fitter, a piece of iron pipe two or three inches long; twist the hose over it until the ends meet, wrap with strong twine, well waxed, and it will last a long time.

Hotbed—To Make a.

Make a frame 6 feet long by 4 feet wide; let one end be 2 feet in height and the other end 1 foot. Along the top of the long sides, about an inch

from the upper edges, nail 2 cleats. This frame may be made of one-inch boards. Glaze the sash and fit it upon these cleats, thus forming an inclined plane, which, when the bed is completed and the frame permanently arranged, should be made to face the south-east. In this manner the rays of the morning and noonday sun fall directly upon the growing plants.

To make the bed, draw well-rotted horse manure and pile it in a square heap, about 3 feet deep, and of sufficient dimensions to admit of the frame being placed securely upon the top. Within the frame, cover the manure heap with about 6 inches of rich earth. Put on your sash and leave it until the fermentation of the heap causes the earth to become warm. When this is effected, large dewdrops will form upon the inside of the glass. If the fermentation is not very active, cover the sash with boards, so as to prevent all radiation of heat from the pile. The frame may be kept still warmer by banking up the outside to the top with manure.

When the earth has become thoroughly heated the bed is ready for sowing. To sow with the finger, draw drills about half an inch deep, take the seed of cabbages, cauliflowers, tomatoes, peppers, etc., between the forefinger and thumb, and by rubbing the two gently and moving the hand along the drill, the seed may be sown evenly and thickly.

The great principle in the successful forcing of plants in a hotbed is to subject them to a sufficient amount of heat without allowing them to burn. This can only be regulated by experience and judgment. If, however, the weather be very warm, by throwing open the sash during the day and closing at night, the plants may be brought in contact with external air, and will become more hardy and bet-

ter able to bear the chilling effects of transplanting into the open air.

A constant succession of early plants may in this manner be forced, and after their removal melons and cucumbers may be planted in their places in small sods, and, when sufficiently forced, may be removed without being at all disturbed.

Hot Weather—Beverage for.

The yolk of eggs beaten up; lump sugar (to taste); citric acid powdered, or tartaric acid (small quantity, exact quantity soon found out); one or two drops of essence of lemon on a lump of sugar, to make it mix readily with the water. This is really an excellent, agreeable, and inexpensive beverage.

Houses, Building—Hints on.

Build solid, substantial foundations laid up in cement or mortar, with footing-course projecting 6 inches on either side, as this is a preventive against rats, burrowing under the foundation and entering the house from the outside. Plaster the walls on the outside, flush and smooth, with cement, where coming against the earth; this prevents the surface water from percolating through the joints of the walls and making your cellar wet and damp. If it is a clay soil, and your house is situated on a hillside, sub-drain your cellar, lead the drain out to the lowest part of your ground, and let it discharge on the surface. If your ground slopes in all directions away from the house, the above precaution is not necessary.

Do not support the interior partitions to your house upon brick piers in the cellar with a timber girder running from pier to pier, and the floor-beams resting thereon. This is very faulty construction, as it admits of the shrinkage of the timber girder and the floor beams above it, producing settling and cracks throughout the building. These interior partitions sustain fully

as much, if not more, weight than the exterior walls, and therefore should have eight or twelve inch walls under all bearing partitions. Build these supporting walls up to the top of the floor-beams, so as to permit the stud partitions above to rest directly on the brick work, and thereby avoid the shrinkage of the beams. All stud partitions above the first story should, if possible, rest on the heads of the partitions beneath, thus again avoiding shrinkage and consequent settling.

It is beyond denial, false economy to use light floor-beams, as their constant vibration when walked upon is excessively annoying and unpleasant. They should never be placed more than 16 inches apart between centres, and for ordinary spans should be at least 2 by 10 inches, and 2 by 11 and 2 by 12 inches for spans not over 18 feet. All beams should be thoroughly cross-bridged, and all floors should be deafened. This deafening is not only for the purpose of deadening the sound, but it also prevents any water that may be spilled on the floor above staining the ceiling underneath. It also prevents the rapid spread of fire.

All ceilings should be cross-furred, the purpose of which is to bring the ceiling to a true level and to prevent cracking.

It is a very good plan to have all doors hung on loose-jointed butts, so as to allow of their being easily lifted off the hinges, should they require at any time to be eased or planed off. This is also a great convenience on occasion of an entertainment, as the doors can be removed and stored away, and the house thoroughly thrown open to the company.

All first-class houses should have double doors. The first flooring may be of mill-worked boards, and the finishing floor (which may be of any

wood desired) should not be put down until the plastering is complete, and the base and casings to the door are up; by adopting this plan a very thorough floor is obtained, as we avoid all the dirty and wet work of the plasterer, and the wear and tear incident to the passing to and fro of the workmen. The effect of the shrinkage of the base from the floor is also avoided, giving the work a better finish. It makes a much more rigid floor, and ties the building together much better, to lay the second floor at right angles with the first floor.

Always see that the plastering is carried down to the floor, and by this means avoid as far as possible having any space at the back of the base-board, wherein cockroaches and other vermin may find refuge. Also plaster behind panel backs, under all windows, and where the subsill rests on the stone sill, to prevent the cold air and snow from drifting in.

In wooden houses, be careful to have all of the cappings and tops to the windows and doors covered with tin, the tin to be carried up underneath the outside covering or clap-boarding.

In conclusion, put yourself at the outset in the hands of a good, thorough architect, and be governed by him in the mode of construction. Listen to his suggestions, for he has had much more experience than you. Do not desert him because he tells you candidly what your building will cost, and go to others who will seek to persuade you that they can produce the same amount of room at much less cost; for this can only be done by the process of skinning, which means leaving out those matters which are contained in the above suggestions, and very many more, all of which greatly contribute to the durability of the house and the actual comfort of existence within it. In this, as in many other cases, the best economy does not

lie in the fancied saving of money at the outset, but in the adoption of wise plans.

House-cleaning.

In cleaning a room, the carpet should come up first, not only because of the dust, but to give the floor all day to dry, not leaving it to be scrubbed last, as we have seen some bad managers do, and pay for it by influenzas. Where the walls are papered, they should next be swept with a clean towel pinned firmly round a broom, if there is not a brush kept for the purpose. The ceilings of chambers are usually white-washed; this is the next proceeding; and the walls scrubbed, if painted or hard finished. Then come windows and woodwork, in all things being careful to use as little slop as will thoroughly answer the purpose. In cleaning wood work, use little soap, but plenty of clean water, which will prevent discoloration. If dirty spots and patches are wiped off the year round, faithfully, there will be much less need of scrubbing the boards bare in "house cleaning." Oak or dark woods, now so much the fashion, need not be touched, with good care, more than once a year; frequent dry rubbing will answer every purpose.

House—How to Furnish a.

If you are about to furnish a house, do not spend all your money, be it much or little. Do not let the beauty of this thing and the cheapness of that tempt you to buy unnecessary articles. Doctor Franklin's maxim was a wise one—"Nothing is cheap that we do not want." Buy merely enough to get along with at first. It is only by experience that you can tell what will be the wants of your family. If you spend all your money, you will find you have purchased many things you do not want, and have no means left to get many things which you do want. If you have enough, and more than

enough, to get everything suitable to your situation, do not think you must spend it all, merely because you have it. Begin humbly. As riches increase it is easy and pleasant to increase in comforts; but it is always painful and inconvenient to decrease. After all, these things are viewed in their proper light by the truly judicious and respectable. Neatness, tastefulness and good sense may be shown in the management of a small household, and the arrangement of a little furniture, as well as upon a larger scale; and these qualities are always praised, and always treated with respect and attention. The consideration which many purchase by living beyond their income, and, of course, living upon others, is not worth the trouble it costs. The glare there is about this false and wicked parade is deceptive; it does not, in fact, procure a man valuable friends or extensive influence.

Houses—To Keep Cool in Hot Weather.

In very hot days a cool apartment is a real luxury to be had far oftener than most people suppose possible. The secret consists, not in letting in cool air, for naturally all do that whenever they have the chance; but in keeping out the hot air. If the air outside a room or house be cooler than the air inside, let it in by all means; but if it be hotter, carefully keep it out.

A stair-case window left open during the night will often cool the passages of a house, and the rooms, too, if the doors be not shut; but it must be closed at 8 or 9 o'clock in the morning, or, if on the sunny side, at 4 or 5 o'clock, and the blind drawn down. The mistake people generally make is to throw open their windows at all hours of the day, no matter whether

the atmosphere outside be cool or scorching.

Let us have some air, they say, and in comes the treacherous breeze—for even hot air is pleasant while it is gently blowing, taking away perspiration, and thereby cooling the skin; but the apartment is made warmer, instead of cooler, and as soon as they move out of the draught they find their room to be more uncomfortable than before.

Let in cool air—keep out hot—that is the only formula to insure the minimum of discomfort. Sitting-rooms may generally be kept cool during the whole day if the doors be only opened for ingress and egress, and the windows kept closed and shielded from direct sunshine by a blind. If the atmosphere of a room be impure from any cause, let it be renewed; hot air is less injurious than bad air. If a room be small in comparison with the number of persons engaged in it, free ventilation becomes indispensable.

In cooking apartments the temperature will probably be higher than outside, hence the free admission even of hot air will be desirable. If persons do not object to sitting in a direct draught of air, windows and doors may be opened, a breeze being more refreshing, even though several degrees warmer than still air; but under nearly all other circumstances rooms should be kept closed as much as possible until after sun-down, or till the air outside is cooler than that inside. Let in cool air; keep out hot.

Houses—When to Paint.

Repeated experiments prove that paint applied between November and March will last twice as long as that applied in warm weather. The reason is that in cold weather the component parts of the paint form a hard substance on the surface, as hard almost as glass. But in warm weather

the oil penetrates the boards, and the paint soon wears off.

Houses—Choice of Color for.

The choice of color for country houses requires the exercise of taste, judgment, and an eye for harmonious combinations. It is laid down as a rule by Calvert Vaux, that every building requires four tints to make it a pleasant object in the way of color. "The main walls," he remarks, "should be of some agreeable shade of color, the roof-trimmings, verandas, and other wood-work, being either of a different color, or of a different shade of the same color, so that a contrast, but not sharp one, may be established—a third and fourth color, not widely different from the other wood-work, should be applied to the windows, blinds, etc."

The greatest defect in the general-ity of country buildings is the too frequent use of white. Another most decidedly objectionable color is unmodified red, or those brown-stone tints, approaching to chocolate color, which are so frequently used in the construction of town dwellings.

The simplest practical rule in the painting of houses, is to choose paint of some neutral tint that is quiet and satisfactory, and let the facings of the windows, cornices, etc., be painted several shades darker of the same color.

House Plants—To Keep Without Fire.

Take an old bed quilt, put it on the floor, and set the plants together in the center. Set a stand over them, and bring the quilt up over the top. If any of the plants are very sensitive to the cold, a newspaper pinned around them would be an additional protection.

House—Hints on Taking a.

Rent.—Before taking a house, be

careful to calculate that the rent is not too high in proportion to your means; for remember that the rent is a claim that must be paid with but little delay, and that the landlord has greater power over your property than any other creditor. It is difficult to assign any fixed proportion between income and rental to suit all cases, but a reasonable basis for the settlement of this point may be found in the assertion that while not less than one-tenth of a man's entire income need be set apart for rent, not more than a sixth, or at the very utmost a fifth, should be devoted to this purpose. Having determined the amount of rent which you can afford to pay, be careful to select the best and most convenient house which can be obtained for that sum. And in making that selection let the following matters be carefully considered:

Situation, Healthful.—Find out the nature of the sub-soil on which the house stands—for example, a gravel or chalk subsoil is better than a subsoil of clay, because the former admits of a speedy escape of the surplus water in time of heavy and continuous rain, while the latter does not. Avoid the neighborhood of graveyards, and of factories giving forth unhealthy vapors. Avoid low and damp districts, the course of canals, the localities of reservoirs of water, gas works, etc. Make inquiries as to the drainage of the neighborhood, and inspect the drainage and water supply of the premises. A house standing on an incline is likely to be better drained than the one standing upon the summit of the hill, or on a level below a hill. Endeavor to obtain a position where the direct sunlight falls upon the house, for this is absolutely essential to health; and give preference to a house the openings of which are sheltered from the north and east winds. Consider the

distance of the house from your place of business, and its relation to provision markets, and shops in the neighborhood, and to the church.

Sanitary Condition and State of Repair.—Having considered these material and leading features, examine the house in detail, carefully looking into its state of repair. When a furnished house is let, the law implies that it shall be fit for habitation; but this is not the case with regard to an unfurnished house. In the latter case the tenant is presumed to have satisfied himself beforehand as to its condition, and therefore a person who intends taking an unfurnished house should have it examined, and should know that the drainage is in perfect order. Ascertain, if possible, that the foundations are air-tight and water-tight; whether the cellars are dry or damp; state of the water supply and sources of supply; water-closet apparatus; bathroom; ventilation; gas supply; electric lighting or bells. Also notice the windows that are broken; whether the chimneys smoke.

Do not commit yourself by the signing of any agreement until you are satisfied upon all these points, and see that all has been done which the landlord may have undertaken to do, before you take possession of the house.

Housewives and Home Comforts, Golden Hints for.

Household Management.—Between husband and wife little attentions beget much love.

Always lay your table neatly, whether you have company or not.

Whatever you may choose to give away, always be sure to keep your temper.

Late at breakfast—hurried for dinner—cross at supper.

Breakfast should always be served regularly, as it is the starting point

of the day's duties and engagements; if it is late, it upsets the whole day's programme.

Matches should be kept in every bedroom, well out of reach of children. They are cheap enough.

A wire fire-guard, for each fireplace in a house costs little, and greatly diminishes the risk to life and property. Fix them before going to bed.

Allowing children to talk incessantly is a mistake. We do not mean to say that they should be restricted from talking at proper seasons, but they should be taught to know when it is proper for them to cease.

Economy.—Much knowledge may be obtained by the good housewife observing how things are managed in well-regulated families.

Regularity in the payment of accounts is essential to housekeeping. All tradesmen's bills should be paid weekly, for then any errors can be detected while the transactions are fresh in the memory.

It is better to accomplish perfectly a very small amount of work than to half-do ten times as much.

See that nothing is thrown away which might have served to nourish your own family or a poorer one.

If you have children who are learning to write, buy coarse white paper by the quantity, and make it up into writing-books. This does not cost half so much as it does to buy them ready made at the stationer's.

All linen rags should be saved, for they are useful in sickness. If they have become dirty and worn by cleaning silver, etc., wash them and scrape them into lint.

New iron should be very gradually heated at first. After it has become inured to the heat, it is not so likely to crack.

Dirty windows speak to the passer-by of the negligence of the inmates.

The oftener carpets are shaken the longer they wear; the dirt that collects under them grinds out the threads.

Never put away plates, knives and forks, etc., uncleaned, or great inconvenience will arise when the articles are wanted.

Do not let the knives be dropped into hot dish-water. It is a good plan to have a large tin pot to wash them in, just high enough to wash the blades without wetting the handles.

Charcoal powder will be found a very good thing to give knives a first-rate polish.

Scald your woodenware often, and keep your tinware dry.

New wooden utensils should be first well soaked in cold and then in scalding water. Wooden bowls very frequently split when hot water is put into them; they should be well greased, inside and out, and laid by for a day or two, and then scour them well for several days till clean and free from grease.

Clean a brass kettle with salt and vinegar before using it for cooking.

A warming-pan full of coals, or a shovel of coals, held over varnished furniture, will take out white spots. Care should be taken not to hold the pan near enough to scorch; the place to which heat has thus been applied should be rubbed with a flannel while warm.

Sal-volatile or hartshorn will restore colors taken out by acid. It may be dropped upon any garment without doing harm.

Health.—Eat slowly and you will not overeat.

Persons very commonly complain of indigestion; how can it be wondered at, when they seem, by their habit of swallowing their food wholesale, to forget for what purpose they are provided with teeth?

Keeping the feet warm will tend to prevent headaches.

Take pains to keep your children's feet dry and warm. Don't bury their bodies in heavy flannels and woolens, and leave their arms and legs naked.

People in general are not aware how very essential to the health of the inmates, is the free admission of light into their houses.

Feather beds should be opened every third year, the ticking well dusted, soaped, and waxed, the feathers dressed and returned.

There is much more injury done by admitting visitors to invalids than is generally supposed.

When reading by lamp-light, place the lamp behind you, that the rays may pass over your shoulder on to the book. This will relieve the eyes.

Food.—When you are particular in wishing to have precisely what you want from a butcher, go and buy it yourself.

In cold weather a leg of mutton improves by being hung three or four weeks.

When the meat is hanging, change its position frequently, to equally distribute the juices.

"Wilful waste makes woeful want." Do not cook a fresh joint while any of the last remains uneaten—hash it up, and with gravy and a little management, eke out another day's dinner.

The shanks of mutton make a good stock for nearly any kind of gravy, and they are very cheap.

As far as possible, have pieces of bread eaten up before they become hard: spread those that are not eaten, and let them dry, to be pounded for puddings. Do not let the crusts accumulate in such quantities that they cannot be used. With proper care, there is no need of losing a particle of bread.

Brewis is made of crusts and dry

pieces of bread, soaked a good while in hot milk, mashed up, and eaten with salt.

Apples intended for dumplings should not have the core taken out of them, as the pips impart a delicious flavor to the dumpling.

Apple and suet dumplings are lighter when boiled in a net than in a cloth. Skim well.

Apples and pears, cut into quarters and stripped of the rind, baked with a little water and sugar, and eaten with boiled rice, are capital food for children.

A rice pudding is excellent without either eggs or sugar, if baked gently; it keeps better without eggs.

When you dry salt for the table, do not place it in the salt cellars until it is cold, otherwise it will harden into a lump.

Washing.—If you have difficulty in getting soft water for washing, fill a tub or barrel half full of wood ashes, and fill it up with water, so that you may have lye whenever you want it. A gallon of strong lye, put into a boiler of hard water, will make it as soft as rain water. Some people use pearlash, or potash; but this costs something, and is very apt to injure the texture of the cloth.

Woolen clothes should be washed in very hot suds, and not rinsed. Lukewarm water shrinks them.

Soapsuds form a good manure for bushes and young plants; therefore do not throw them all down the sink or drains.

Mending.—All the mending in the house should be done once a week if possible.

After washing, overlook linen and stitch on buttons, hooks and eyes, etc.; for this purpose keep a "house-wife's friend," full of miscellaneous threads, cottons, buttons, hooks, etc.

A short needle makes the most expedition in plain sewing.

Put your balls or reels of cotton into little bags, leaving the ends out.

When sheets or chamber towels get thin in the middle, cut them in two, sew the selvages together and hem the sides.

In mending sheets and shirts, put in pieces sufficiently large, or in the first washing, the thin parts will give way, and the work done is of no avail.

Persons of defective sight, when threading a needle, should hold it over something white, by which the sight will be assisted.

Sitting to sew by lamp-light at a table with a dark cloth on it is injurious to the eyesight. When no other remedy presents itself, put a sheet of white paper before you.

Clothes.—A bonnet and trimmings may be worn a much longer time, if the dust be brushed well off after use before putting them away.

No article of dress tarnishes so readily as black crape trimmings, and few things injure them more than damp; ladies should therefore be careful to protect them as much as possible.

Husbands—Counsel for.

You can hardly imagine how refreshing it is to occasionally call up the recollection of your courting days. How tediously the hours rolled away prior to the appointed time of meeting; how swiftly they seemed to fly when you had met; how fond was the first greeting; how vivid your dreams of future happiness, when, returning to your home, you felt yourself secure in the confessed love of the object of your warm affection! Is your dream realized?—are you as happy as you expected? Consider whether, as a husband, you are as fervent and constant as you were when a lover. Remember that the wife's claims to

your unremitting regard, great before marriage, are now exalted to a much higher degree. She has left the world for you—the home of her childhood, the fireside of her parents, their watchful care and sweet intercourse have all been yielded up for you. Look, then, most jealously upon all that may tend to attract you from home, and to weaken that union upon which your temporal happiness mainly depends; and believe that in the solemn relationship of husband is to be found one of the best guarantees for man's honor and happiness.

Hyacinth Culture.

The hyacinth requires a light but rich soil, sandy loam, well dressed, and mixed with thoroughly rotted manure, but if the soil is not sandy, add a third of silver sand. The soil for a hyacinth bed must be deeply dug, well mixed and turned over. Plant the bulbs eight inches apart, and four inches under the soil.

To Grow Hyacinths in Pots.—Select the bulbs, and plant each one separately in a four-inch pot, well drained with potsherds, and filled within an inch of the top with the same soil recommended for the beds. If the plants are to remain outdoors until rooted, place them in a dry, level place, and

cover them about six inches deep with straw, decayed leaves, or cocoanut fibre, putting a piece of bass mat over to keep off the rain; they will not require watering. In ten weeks they will have made sufficient roots, and may be brought into the house and watched carefully. If brought into the house directly they are potted, keep them in a dark, moist atmosphere for about ten weeks, then gradually expose them to the light, and give them water frequently.

To Grow Hyacinths in Glasses.—

Single, flowering hyacinths are the best for this purpose. Fill the glasses with soft water (rain water is the best), so as nearly to touch the bulb. Exclude the light totally from them for five weeks, by which time the glass ought to be full of roots; they may then be placed where they will have plenty of light and an equable temperature. Do not change the water while they are in the dark, but when exposed to the light pour out half the water in each glass once a week, and fill it up with fresh water, which should have been kept for some time in the same room, that the temperature may be the same. A very little guano, mixed with the water, strengthens the plant.

I

Ice.

Ice is specifically lighter than water which is just going to freeze, and therefore does not sink in it. Water in freezing expands about one-eleventh in bulk, which accounts for so many burst pipes, etc. Freezing takes place usually at 32 degrees Fahrenheit, but if the water is kept perfectly still, it can be cooled to 22 degrees Fahrenheit without freezing. The least shake, however, will make it freeze instantly, and resume the 32 degrees temperature. Sea water does not freeze till 29 degrees

Fahrenheit. The color of pure ice is deep blue, but it can only be detected when the ice is in large masses. In the severe winter of 1740 a whole house was built of ice on the Neva. The trade in ice is as old as Nero's time, but it has been important only within recent times—for preserving provisions, for brewing, for surgical operations, etc. America exports enormous quantities, especially from the Wenham Lake via Boston, to all parts of the world; but Britain is supplied almost entirely from Norway, where a lake

near Christiania has been christened "Lake Wenham."

Ice Chests—To Make.

Take two dry goods boxes, one of which is enough smaller than the other to leave a space of about three inches all around when it is placed inside. Fill the space between the two with sawdust packed closely, and cover with heavy lid made to fit neatly inside the larger box. Insert a small pipe in the bottom of the chest to carry off the water from the melting ice. For family use this has proved quite as serviceable and as economical as more costly "refrigerators."

Ice—To Gather.

Ice should be cut early, as the first ice keeps best, and is easier procured. Snow has to be removed from the surface of the ice before cutting, as it injures the quality. It should be gathered in December; select a clear, cold day, and, with ice tools—which should consist of a cross-cut saw, an axe, a pike pole, and an ice ladder—go to the scene of your operations. Cut three feet wide with the saw, and split off with the axe, by chipping out a V, or wedge-shaped hole, at each edge; then strike a few light blows in each hole until the block separates from the mass. In this manner you can get your blocks out nearly as true as with the saw.

A convenient size to handle and pack is about two by three feet. Twelve cakes will pack one layer eight by nine feet square, which laid up eight or nine feet high, is sufficient to last a large family.

The ice ladder is used to draw the floating cakes of ice upon the surface, and to load them upon the sled or stone-boat, for removal to the ice-house. The ladder is about twelve feet long and twenty inches wide. The upright pins must be strong, and the round at one end extend through both

sides, to make handles. The ladder is lowered into the water, and the cake of ice floated over it. Then draw out the ladder, and at the same time lower the handles. The pins will hold the cakes upon the ladder; when upon the surface, it can be quickly unloaded by raising one side of the ladder. The ices should be taken to the house, and packed at once. Use a plank to move the cakes, where needed, when packing.

Look to your drainage; also see that your house is tight at the bottom; for a current of air passing through the ice, causes it to melt rapidly. Leave a space of six inches between the ice and walls, and fill in with straw, packed close, or sawdust, tanbark, or swamp moss. The latter is to be preferred. Cover with a thick layer, and fill to the roof with straw. Use double doors, with a cooling room.

Ice-House—To Build.

A family ice-house need not be an expensive structure. It may be built cheaply, subserve its object excellently, and add to the attractions of a homestead by being a sightly object. A building twelve feet square and eight or nine feet high, is sufficient for the wants of the most exacting family. It may be a frame building, entirely above the surface of the ground, and better if supported on posts elevated a few inches, to be certain of good drainage. Built of joists two by three inches, with an outer boarding; having inside another series of uprights also boarded; from six to ten inches removed from the outer shell; with a solid plank floor; the space between the two walls filled with tanbark, sawdust, straw or chaff; and a roof of good pitch; the ice-house is complete. A drain for water should be made from the floor, and the pitch of the roof filled with straw, hay, or some similar dry, porous material. On the roof should be a ventilator, the top defended from

the rain or snow. The ice should be packed in one solid mass, the sides not reaching the inner walls of the building, but allowing a space of from six to twelve inches all around. The top of the ice should be covered with straw, and the doors should be like the sides of the building, or double doors should be made, one in the outer and the other in the inner wall. Plant morning-glories or any climbing plant around the building and induce them to creep up the walls and over the roof as an additional defense against the fervid sun of summer. Two workmen, if not practical carpenters, can put up such a building in one, or at most, two days, which, if taste and judgment are used, will prove to be a slightly addition to the attraction of a country home, and a useful adjunct to the farm, its contents being invaluable in sickness. Such an ice-house would prove also convenient as a refrigerator on a large scale, preserving food of various kinds and the products of a dairy.

A Cheap Ice-house.—It costs but little to build an ice-house that will keep ice the year round, where practical utility only is aimed at, and not elegance of structure. A writer on this subject says: Last January I drew one large load of sawdust and spread on the ground on the north side of my horse barn, then drew the ice (sawed in square cakes) and built up a square pile some eight by ten feet and seven or eight feet high, filling up the space between the cakes with pounded ice. I then set up scantling and built a board house around it two feet larger each way than the ice; then filled in sawdust around and two to three feet on top and covered with boards and slabs. We have used freely through the season and sold to picnic parties, given away to sick neighbors, and have plenty of ice yet.

Another.—Another writer thus tells how he constructed an ice-house: I set posts in the ground, so as to make a house twelve-foot square (three posts on each side), and board or plank it up eight feet high, on the inside. The surface earth is now dug out six inches deep, and sawdust filled in one foot deep, making it six inches above the level of the earth. The ice is carefully packed, nine feet square and six feet high, leaving a space of eighteen inches between ice and boards, closely packed with sawdust, and the same thickness of sawdust placed on top. I have an old-fashioned board roof over this ice-house. The space above the sawdust is left open, so that the air can circulate through, and the sun shine in. The result is that we have used ice daily and have a plenty yet. As to the cost, four men with one team, cut, handled and packed the ice, and filled in the sawdust in less than two days, notwithstanding we had to haul the ice half a mile.

Ice-House—Extemporaneous.

An ice-house can be extemporised without making a tenon or sawing a board. Construct a pen near the pond or stream where the ice is to be gathered, choosing, if possible, a gravel bank where there will be good drainage. The pen may be made of rails twelve feet long, or of any desired length. The larger the pen, the better the ice will keep. Lay up two rails upon each of the four sides. Make the bottom level, and cover it a foot or more with straw, sea-weed, or any convenient refuse vegetable matter. Sawdust is better than straw, if it can be had. Spent tanbark is a good material for this foundation. Cut the cakes of ice in the usual manner, and pack them closely, filling the interstices with pounded ice, and if the weather is freezing, pour on a little water to make it solid. Pack the outside with a foot

of straw, sawdust, or other material, and put up the fence as the pile of ice rises. The pile can be conveniently made about eight feet high. Cover the top with at least eighteen inches of sawdust, or two feet of straw trodden down closely. Make a roof of boards or slabs slanting to the north, sufficiently steep to shed water, and fasten with a few nails. Such a pile of ice as this can be secured by a couple of men and a team in a day. A cheap ice-box made with double sides and packed with sawdust will be wanted. The inner chamber should be about 2 feet long, 2 feet deep, and 18 inches wide. This will hold a single cake of ice weighing a hundred pounds or more, and leave room on top to keep milk, fresh meats, fruit and other substances. It will last from four days to a week, according to the quantity that is used in the drinking water. If the extemporaneous ice-house is not disturbed more than once a week, it will probably supply the family through the summer with abundance of ice.

Implements (Farm)—Care of.

It is a lamentable fact that a large majority of our farmers lose as much from a want of proper care of tools as from the actual wear and tear of them. Repeated wetting and drying injure, sooner or later, any kind of wood-work; the moisture getting into the cracks soon begins the work of decay. This may be prevented by the timely and occasional application of some cheap paint. The shovels, spades, and forks are brought into the tool-house with the dirt sticking to them, and in that condition they remain through the winter, or until they are again needed. All practical farmers know how much better a bright plow turns the furrow, how much easier it is on the team and driver, and yet they will bring their plows and harrows in every fall with the dirt sticking to

them, and allow them to remain in that condition until again wanted, much to their irreparable injury, and also to their own loss and expense.

Anti-rust Mixtures.—There are various mixtures which might be applied to the iron to prevent rusting, the cheapest of which is common (unsalted) grease. A better article may be formed by the melting together of six pounds of fresh (not salted) lard and two of resin. An old iron pot is a good thing to keep and compound the mixture in. As soon as the tool is done being used for the season, clear it off and give it a coat of this mixture, and even if it remains undisturbed for years it will come out as bright as when put away. Implements properly cared for will not only last twice as long as where this is not the case, but, as we said before, they are far better in every way.

Incense—To Make.

Powdered cascarilla, 2 ounces; myrrh, styrax, benzoin, and Burgundy pitch, of each one ounce.

India Rubber—Artificial.

Prof. Sonnenschein has discovered that an elastic mass resembling caoutchouc may be obtained by combining tungstate of soda with certain organic substances. If tungstic acid or tungstate of soda be added to glue, and afterward muriatic acid, a compound of tungstic acid and glue is precipitated which is so elastic at 85–105 degrees Fahrenheit, that it can be drawn out into very thin fibres. On cooling, the mass becomes very solid and brittle. It is proposed to employ this substance in place of the costly albumen for mordanting cotton, especially for aniline colors. The same material has been used in tanning leather; but this became hard as stone, and consequently unsuitable for ordinary purposes. By adding tungstate of soda and muriatic acid to a solution of gelatin, and heating the precipitate, a substance is

obtained which may be used as a putty or cement in many cases.

Inks.

Asiatic.—Logwood shavings and powdered galls, of each 2 lbs.; green vitriol, 1 lb.; gum, $\frac{1}{2}$ lb.; pomegranate bark, $\frac{3}{4}$ lb.; water, 1 gallon: infuse 14 days, with frequent agitation.

Copying.—Take two gallons of rain water, and put into it $\frac{1}{4}$ pound of gum arabic, $\frac{1}{2}$ pound brown sugar, $\frac{1}{4}$ pound clean copperas, $\frac{3}{4}$ pound powdered nut galls. Mix, and shake occasionally for ten days, and strain. If needed sooner, let it steep in an iron kettle until the strength is obtained.

Another.—Take two gallons rain water, and put into gum arabic, $\frac{1}{4}$ lb.; brown sugar, $\frac{1}{4}$ lb.; clean copperas, $\frac{1}{4}$ lb.; powdered nutgalls, $\frac{3}{4}$ lb.; mix, and shake occasionally for ten days, and strain; if needed sooner, let it stand in an iron kettle until the strength is obtained. This ink will stand the action of the atmosphere for centuries, if required.

Inks, Copying—Requiring no Press.

A black copying ink, which flows easily from the pen, and will enable any one to obtain very sharp copies without the aid of a press, can be prepared in the following manner: One ounce of coarsely broken logwood extract and two drachms of crystalized carbonate of soda are placed in a porcelain crucible with eight ounces of distilled water, and heated until the solution is of a deep red color, and all the extract is dissolved. The crucible is then taken from the fire. Stir well into the mixture one ounce of glycerine of specific gravity of 1.25, fifteen grains of neutral chromate of potash dissolved in a little water, and two drachms of finely-pulverized gum arabic, which may be previously dissolved in a little hot water so as to produce a mucilaginous solution. The

ink is now complete and ready for use. In well-closed bottles it may be kept for a long time without getting mouldy and, however old it may be, will allow copies of writing to be taken without the aid of a press. It does not attack steel pens. This ink cannot be used with a copying press. Its impression is taken on thin moistened copying paper, at the back of which is placed a sheet of writing paper.

Ink, Mould in—To Prevent.

The microscope has revealed the fact that mould is a plant, propagated like other plants; and anything that will kill vegetation will prevent ink or any other mould. The common remedies applied for this purpose are creosote, carbolic acid, oil of cloves, acetic acid, alcohol, corrosive sublimate, arsenic, etc.; but always added in comparatively small quantities.

Ink—To Remove Oiliness in.

Add a little ox-gall and vinegar to the ink.

Ink, Permanent—For Stamps or Type.

Equal parts of black oxide of manganese and hydrate of potash are mixed, heated to redness, rubbed, with an equal quantity of smooth, white clay, into a paste, water being added for the purpose.

Another.—Sulphate of manganese, 2 drams; lampblack, 1 dram; powdered loaf sugar, 4 drams; rubbed into paste with water. After stamping, dry the linen, etc., and wash well in water.

Inks, Sympathetic.

For Secret and Other Correspondence.—Chemistry gives us the means of performing many curious feats. Among the most interesting of these are the perfectly colorless fluids, clear as water, which however, when written with, produce a variety of colored

letters, by reason of simple chemical changes taking place as soon as the fluid touches the paper. We will describe a few of these transformations.

To Write Blue Letters with a Colorless Liquid.—A piece of writing paper is prepared by moistening with a solution of oxalic acid, and drying; and a diluted (colorless) solution of nitrate of cobalt is used for writing. The oxalate of cobalt which results from the contact is blue. Or the paper may be moistened with the nitrate of cobalt, and the writing done with the oxalic acid. Another shade of blue is produced by moistening the paper with a solution of yellow prussiate of potash. After drying it is ready for use; and when it is written on with a solution of chloride or sulphate of iron, letters of Prussian blue will appear. The paper may also be prepared with sulphate of iron, and the writing performed with the prussiate of potash.

To Write Red Letters with a Colorless Liquid.—Prepare the paper with a weak solution of sulphate of iron, to which a little nitric acid has been added; then write with a very dilute solution of sulpho-cyanide of potassium. If the solution is strong, the color is very dark; if weak, bright red.

To Write Black Letters with a Colorless Liquid.—Prepare the paper with a decoction of gall-nuts, or a solution of tannic acid, and write with a solution of sulphate of iron; or, prepare with the latter and write with the former. Another black is obtained by preparing the paper with a weak solution of bichromate of potash, and writing with a solution of extract of logwood, or inversely. Or prepare the paper with a solution of nitrate of bismuth or acetate of lead, and write with a fresh solution of sulphate of potassium.

To Write Yellow Letters with a Colorless Liquid.—Prepare the paper with

acetate of lead, and write with bichromate of potash; or inversely. Or, prepare the paper with a decoction of gall-nuts, and write with chloride of antimony, or inversely.

To Write Orange Letters with a Colorless Liquid.—Prepare the paper with a solution of the yellow protochromate of potash, and write with the extractum saturni of the druggists, or inversely.

To Write Beautiful Purple Letters with a Colorless Liquid.—Prepare the paper with a solution of chloride of tin, and write with a solution of chloride of gold.

If in any of the above manipulations the preparation of the paper is omitted, the letters written will be entirely invisible, or nearly so, and will become visible in their respective colors when moistened with the solution otherwise used for the preparation. In this manner, a secret correspondence is often kept up, one party, for instance, writing with a solution of yellow prussiate of potash, while another, for whom the writing is intended, knows the secret to moisten the paper with a solution of sulphate of iron, when the letters will appear in blue; or one writing with chloride of gold, the other party moistening with a tin-salt, when the letters appear in purple.

Sometimes it is desirable that the writing may be made to disappear again. For this purpose the writing is performed with a solution of nitrate of silver. After becoming dry, it is made visible by means of a solution of common salt, and exposure to the sun or daylight. When desired to disappear it is washed with a solution of bichloride of mercury; and then it may be made to reappear a second time by moistening with a solution of hyposulphite of soda.

Ink—Transfer.

Mastic in tears, 4 ounces; shellac, 6 ounces; Venice turpentine, $\frac{1}{2}$ ounce; melt together; add wax, $\frac{1}{2}$ pound; tallow, 3 ounces. When dissolved, further add hard tallow soap (in shavings), 3 ounces; and when the whole is combined, add lampblack, 2 ounces. Mix well, cool a little, and then pour it into molds. This ink is rubbed down with a little water in a cup or saucer, in the same way as water-color cakes. In winter, the operation should be performed near the fire.

Ink, Ticketing—For Grocers.

Dissolve 1 ounce of gum arabic in 6 ounces water, and strain; this is the mucilage; for a black color, use drop-black, powdered, and ground with the mucilage to extreme fineness; for blue, ultramarine is used in the same manner; for green, emerald green; for white flake white; for red, vermilion, lake, or carmine; for yellow, chrome yellow. When ground too thick they are thinned with water. Apply to the cards with a small brush. The cards may be sized with a thin glue, and afterwards varnished, if it is desired to preserve them.

Ure's.—Galls, 12 lbs.; gum, 5 lbs.; copperas, 5 lbs.; rain water, 12 gals. Boil the galls in nine gallons of water for three hours, adding water as it evaporates. Pour off the clear, add the strained solution of gum, dissolve the copperas separately; and mix the whole. To make twelve gallons.

Violet.—Take aniline violet, $\frac{1}{2}$ oz., and digest it in 5 ounces of alcohol in a glass or an enameled iron vessel for three hours; then add a full quart of distilled water and heat gently for several hours, or until the odor of the spirit has disappeared; then mix in two drachms of gum arabic dissolved in $\frac{1}{2}$ pint of water, and allow the whole to settle. Experiment will determine

for you the precise quantity of coloring matter that will be required.

Another.—Eight parts of logwood, and 64 parts of water; boil down to one-half, then strain and add 1 part of chloride of tin.

Ink, Black—Various Other Formulas.

A method of making this has been recommended which is worthy of notice. Put into a stoneware jar, containing a gallon of water, $\frac{1}{4}$ of a pound of bruised nutgalls, and then, 24 hours after, add 6 oz. of gum arabic, 24 hours after add 6 oz. of copperas, 6 oz. of gum arabic, and 4 or 5 drops of creosote. The vessel is to be closed and left for two or three weeks, but shaken every two days. The contents are then allowed to settle, and the clear liquor will be fit for use, of a deep black.

Another.—To 1 gal. boiling soft water, add $\frac{3}{4}$ ounce extract logwood, boil two minutes, remove from the fire, and stir in 48 grains of bichromate of potash, 48 grains of powdered gum arabic, and 8 grains of prussiate potash. For ten gallons, use $7\frac{1}{2}$ ounces extract of logwood, 1 ounce bichromate of potash.

Another.—Take 2 ounces extract logwood; 1 gallon soft water; boil slightly, or simmer in an iron vessel fifteen minutes; dissolve in a little hot water, 24 grains bichromate of potash, 12 grains prussiate of potash, and stir into the liquid a few minutes while over the fire; take off, and when settled, strain it twice through common muslin or sheeting cloth. The above ink is a jet black from the first, flows beautifully from the pen, and is so indelible that even oxalic acid will not remove it from paper.

Another.—One pound of logwood is boiled for two hours with seven pounds of water; the latter must be renewed as fast as it evaporates; after cooling,

50 grains of yellow chromate of potash are added, and the whole strained through a cloth. It is then ready for use.

Another.—Take copperas, 4 ounces; nutgalls, 12 ounces; logwood, 8 ounces; gum arabic, 1 ounce; glycerine $\frac{1}{2}$ ounce; water 48 ounces; all the substances are to be pulverized and boiled for an hour together; they are then set to cool, strained through a flannel bag, and after that through a folded filter. A drop of oil of cloves is added, the whole well shaken and filled into bottles.

Ink—Writing.

Boil eight ounces of galls in coarse powder, and four ounces of logwood, in thin chips, in twelve pints of rain water for one hour; strain the liquor, and add four ounces of green copperas, three ounces of powdered gum arabic, one ounce of blue vitriol, and one ounce of coarse sugar; stir the mixture until the whole is dissolved, then let it subside for twenty-four hours; strain it off speedily, and put it by in stone bottles for use.

Ink Powder.

Ink powder is formed of the dry ingredients for ink, powdered and mixed. Powdered galls, two pounds; powdered green vitriol, one pound; powdered gum, eight ounces. Two ounces of this mixture will make one pint of ink.

Ink—Red Writing.

Best ground Brazil wood, four ounces; diluted acetic acid, one pint; alum, half an ounce. Boil the ingredients slowly in an enameled vessel for one hour, strain, and add an ounce of gum.

Ink—Indian.

Take finest lampblack and make it into a thick paste with thin isinglass; size it, then mold it, and scent with a little essence of musk.

Ink—Marking.

There are several recipes for this ink, but the following is said to be one of the best of its kind: Dissolve, separately, one ounce of nitrate of silver, and one and a half ounces of best washing soda in distilled or rain water. Mix the solutions, and collect and wash the precipitate in a filter; whilst still moist, rub it up in a marble or Wedgwood mortar with three drachms of tartaric acid; add two ounces of distilled water, mix six drachms of white sugar, and ten drachms of powdered gum arabic, half an ounce of archil, and water to make up six ounces in measure.

Ink for Zinc Garden Labels.

Verdigris, one ounce; sal ammoniac, one ounce; lampblack, half an ounce; water, half a pint. Mix in an earthenware mortar, without using a metal spatula. Directions.—To be shaken before use, and used with a clean quill pen on bright zinc.

Note.—Another kind of ink for zinc is also used, made of chloride of platinum, five grains, dissolved in one ounce of distilled or rain water; but the first, which is much less expensive, answers perfectly, if used as directed, on clean, bright zinc.

Ink—To Take Out of Boards.

Apply strong muriatic acid, or spirits of salts, with a piece of cloth; afterwards wash well with water.

Ink Stains—To Remove from Books.

To remove ink stains from a book, first wash the paper with warm water, using a camel's hair pencil for the purpose. By this means the surface ink is got rid of; the paper must now be wet with a solution of oxalate of potash, or better still, oxalic acid, in the proportion of one ounce to half a pint of water. The ink stains will immediately disappear. Finally, then

again wash the stained place with clean water, and dry it with white blotting paper.

Ink—To Remove from Dress Goods and Table Covers.

Oxalic acid is considered one of the best agents for this purpose. Dissolve ten cents' worth in a pint of soft water; dip the stained spots in it quickly, and then into clear water, and rub well; repeat the process until the stains are removed. If the goods remain in the acid, the texture will be destroyed. The skin of the hands is unpleasantly affected, if brought into frequent contact with a strong solution; care should be taken to dip only the spots into this liquid. If the color of the dress is affected mix with warm water and wet with a dilute solution of ammonia which will restore the original color. Ink stains on table covers can be removed in the same way.

Ink Stains—To Remove from Linen.

With a clean rag or sponge rub the soiled spot with lemon juice in which has been dissolved a small quantity of salt.

Ink—To Extract from Mahogany.

Dilute half a teaspoonful of oil of vitriol with a large spoonful of water and apply the mixture with a feather to the stained wood. The ink mark will disappear.

Ink (Marking)—To Remove.

Wet the stain with a fresh solution of chloride of lime; and after ten or twelve minutes, if the marks have become white, dip the part in solution of ammonia (the liquor ammonia of chemists), or hyposulphate of soda. In a few minutes, wash in clean water.

Ink—To Take Out of Paper.

Solution of muriate of tin, two drachms. To be applied with a cam-

el's hair brush. After the writing has disappeared, the paper should be passed through water, and dried.

Insects—To Exterminate.

By scattering chloride of lime on a plank in a stable, biting fleas are driven away. Sprinkling beds of vegetables with a weak solution of this salt effectually preserves them from caterpillars, slugs, etc. It has the same effect when sprinkled on fruit trees or shrubbery. Mixed in a paste with fatty matter, and applied in a narrow band around the trees, it prevents insects from creeping up. Another plan is to carry all the toads you may find to your gardens. They will devour immense number of bugs. A toad will swallow the largest specimen of the tomato worm, though sometimes he will have a hard time of it. Hens and wasps and spiders are all devourers of your enemies. A common duck will go up and down rows of tomato and potato vines, and pick off the large worms on such vines, as fast as it can see them; and they will see a half dozen when a man would not see one. Young turkeys will do the same service, though they are not so easily controlled and guided. All fallen fruit is to be picked up twice a day—at any rate, once—boiled, and then given to your cattle to be devoured. By doing this it will pay ten times over, and the result of it will be that the next year you will not have insects.

Insects—To Preserve.

After killing the insect with chloroform, paint it with a solution of carbolic acid in alcohol—4 grains to the ounce—and then dry in the sun. This will keep it fresh and beautiful. Insects of fine colors, and also butterflies and moths, should be pinned down in a box prepared for that purpose, with their wings expanded.

Interest Laws of All the States, and Days of Grace.

STATES AND TERRITORIES.	DAYS OF GRACE		PENALTY OF USURY.	RATES OF INTEREST.	
	Notes.	Sight Drafts.		Legal	Special or Contract.
Alabama.....	Yes	Yes	Forfeit of all interest.....	8	8 per ct.
Arizona.....	Yes	Yes	None.....	7	No limit.
Arkansas.....	Yes	Yes	Forfeit principal and interest.....	6	10 per ct.
California.....	No	No	None.....	7	No limit.
Colorado.....	Yes	No	None.....	8	No limit.
Connecticut.....	No	No	None.....	6	No limit.
Delaware.....	Yes	No	Forfeit of principal.....	6	6 per ct.
District of Columbia....	No	No	Forfeit of entire interest.....	6	10 per ct.
Florida.....	Yes	No	None.....	8	10 per ct.
Georgia.....	Yes	No	Forfeit of excess of interest.....	7	8 per ct.
Idaho.....	No	No	Forfeit 10 per cent of principal annually.	8	12 per ct.
Illinois.....	No	No	Forfeit of entire interest.....	5	7 per ct.
Indiana.....	Yes	Yes	Forfeit interest over 6 per cent.....	6	8 per ct.
Iowa.....	Yes	Yes	Forfeit interest, costs, etc.....	6	8 per ct.
Kansas.....	Yes	No	Forfeit twice the excess over 10 percent.	6	10 per ct.
Kentucky.....	Yes	Yes	Forfeit excess of interest.....	6	6 per ct.
Louisiana.....	Yes	No	Forfeit of interest.....	5	8 per ct.
Maine.....	Yes	Yes	None.....	6	No limit.
Maryland.....	No	No	Forfeit excess of interest.....	6	6 per ct.
Massachusetts.....	No	Yes	None (6 per cent on judgments).....	6	No limit.
Michigan.....	Yes	Yes	Forfeit of interest.....	5	7 per ct.
Minnesota.....	Yes	Yes	Forfeit of principal.....	6	10 per ct.
Mississippi.....	Yes	Yes	Forfeit of interest.....	6	10 per ct.
Missouri.....	Yes	No	Excess applicable on principal.....	6	8 per ct.
Montana.....	No	No	None.....	8	No limit.
Nebraska.....	Yes	Yes	Forfeit of interest—costs.....	7	10 per ct.
Nevada.....	Yes	No	None.....	7	No limit.
New Hampshire.....	No	No	Forfeit treble excess of interest.....	6	6 per ct.
New Jersey.....	No	No	Forfeit interest, and costs.....	6	6 per ct.
New Mexico.....	Yes	Yes	Forfeit double amount of interest.....	6	12 per ct.
New York.....	No	No	Forfeit contract, fine, imprisonment....	6	6 per ct.
North Carolina.....	Yes	Yes	Forfeit double amount of interest.....	6	6 per ct.
North Dakota.....	Yes	Yes	Fine not exceeding \$200, imprisonment....	7	12 per ct.
Ohio.....	No	No	Forfeiture of excess.....	6	8 per ct.
Oklahoma.....	Yes	No	None.....	7	12 per ct.
Oregon.....	No	No	Forfeit principal and interest—costs....	6	10 per ct.
Pennsylvania.....	No	No	Forfeit excess of interest.....	6	6 per ct.
Rhode Island.....	Yes	Yes	None.....	6	No limit.
South Carolina.....	Yes	Yes	Forfeit of interest.....	7	8 per ct.
South Dakota.....	Yes	Yes	Forfeit interest, fine, imprisonment....	7	12 per ct.
Tennessee.....	Yes	No	Forfeit excess of interest.....	6	No limit.
Texas.....	Yes	Yes	Forfeit entire interest.....	6	10 per ct.
Utah.....	No	No	None.....	8	No limit.
Vermont.....	No	No	Forfeit of excess.....	6	6 per ct.
Virginia.....	Yes	No	Forfeit excess over 6 per cent.....	6	6 per ct.
Washington.....	Yes	Yes	Double amount of interest, and costs....	7	12 per ct.
West Virginia.....	Yes	No	Forfeit of interest.....	6	6 per ct.
Wisconsin.....	No	No	Forfeit entire interest.....	6	10 per ct.
Wyoming.....	Yes	Yes	None.....	8	12 per ct.

Iron—To Give the Color of Copper.

Take one ounce of copper-plates, cleansed in the fire; three ounces of aqua fortis; dissolve the copper, and when it is cold, use it by washing your iron with it by the help of a feather; it is presently cleansed and smooth, and will be of a copper color; by much using or rubbing it will wear off, but the color may be renewed to its pristine luster by using again the same process.

Iron, Holes in—Chinese Method of Mending.

The Chinese mend holes in cast-iron vessels as follows: They melt a small quantity of iron in a crucible, the size of a thimble, and pour the molten metal on a piece of felt covered with wood-ashes. This is pressed inside the vessel against the hole, and as it exudes on the other side, it is struck by a small roll of felt covered with ashes. The new iron then adheres to the old.

Interest Table—Six Per Cent.

Time	\$1	\$2	\$3	\$4	\$5	\$6	\$10	\$20	\$50	\$100	\$1000
DAYS	1	0	0	0	0	0	0	0	1	2	17
	2	0	0	0	0	0	0	1	2	3	38
	3	0	0	0	0	0	1	1	3	5	50
	4	0	0	0	0	0	1	1	3	7	67
	5	0	0	0	0	0	1	2	4	8	83
	6	0	0	0	0	1	1	2	5	10	100
	7	0	0	0	0	1	1	2	6	12	117
	8	0	0	0	1	1	1	3	7	13	133
	9	0	0	0	1	1	2	3	8	15	150
	10	0	0	1	1	1	2	3	8	17	167
	15	0	1	1	1	2	3	5	13	25	250
	20	0	1	1	2	2	3	7	17	33	333
	25	0	1	1	2	2	4	8	21	42	417
	30	1	1	2	2	3	5	10	25	50	500
	33	1	1	2	2	3	6	11	28	55	550
	63	1	2	3	4	5	6	11	53	105	1050
	93	2	3	5	6	8	9	16	31	78	155
	1	1	1	2	2	3	5	10	25	50	500
	2	1	2	3	4	5	6	10	50	100	1000
	3	2	3	5	6	8	9	15	30	75	150
	4	2	4	6	8	10	12	20	40	100	200
	5	3	5	8	10	13	15	25	50	125	250
	6	3	6	9	12	15	18	30	60	150	300
	7	4	7	11	14	18	21	35	70	175	350
	8	4	8	12	16	20	24	40	80	200	400
	9	5	9	14	18	23	27	45	90	225	450
	10	5	10	15	20	25	30	50	100	250	500
	11	6	11	17	22	28	33	55	110	275	550
	12	6	12	18	24	30	36	60	120	300	600
MONTHS											

A VALUABLE INTEREST TABLE.

The following will be found convenient in the absence of extended interest tables:

To find the interest on a given sum, for any number of days, at any rate of interest.

At 5 per cent., multiply the principal by the number of days and divide by.. 72
 At 6 per cent., as above and divide by.. 60
 At 7 per cent., as above and divide by.. 52
 At 8 per cent., as above and divide by.. 45
 At 9 per cent., as above and divide by.. 40
 At 10 per cent., as above and divide by.. 36
 At 12 per cent., as above and divide by.. 30
 At 15 per cent., as above and divide by.. 24
 At 20 per cent., as above and divide by.. 18

Length of Time at which Money Doubles at Interest.

Rate per cent.	Simple Interest.	Compound Interest.
2....	50 years	35 years 1 day
2½....	40 years	28 years 26 days
3....	33 years 4 months	23 years 164 days
3½....	28 years 208 days	20 years 54 days
4....	25 years	17 years 246 days
4½....	22 years 81 days	15 years 273 days
5....	20 years	15 years 75 days
6....	16 years 8 months	14 years 327 days
7....	14 years 104 days	10 years 89 days
8....	12½ years	9 years 2 days
9....	11 years 40 days	8 years 16 days
10....	10 years	7 years 100 days

Iron Mold—To Remove.

Rub on the spot a little powdered oxalic acid, or salts of lemon, and warm water, let it remain a few minutes and rinse well in clean water.

Iron Mold (Old)—To Remove.

The part stained should be remoistened with ink, and this removed by

the use of muriatic acid diluted with five or six times its weight of water, when it will be found that the old and new stain will be removed simultaneously.

Iron—To Preserve from Oxidation.

Among the many processes and preparations for preserving iron from the action of the atmosphere, the following will be found the most efficient in all cases where galvanization is impracticable—and, being unaffected by sea water, it is especially applicable to the bottoms of iron ships, and marine work generally: Sulphur, 17 lbs.; caustic potash (lye of 35° B.), 5 lbs., and copper filings, 1 lb. To be heated until the copper and sulphur dissolve. Heat, in another vessel, tallow, 750 lbs., and turpentine, 150 lbs., until the tallow is liquefied. The compositions are to be mixed and stirred together while hot, and may be laid on, as paint, to the iron.

Irons, Polished—To Preserve from Rust.

Polished iron-work may be preserved from rust by a mixture, not very expensive, consisting of copal varnish intimately mixed with as much olive oil as will give it a degree of greasiness, adding thereto nearly as much spirit of turpentine as of varnish; or varnish with wax dissolved in benzine.

Cast Iron Work is best preserved by rubbing it with black-lead.

Grates or Fire Irons.—But where rust has begun to make its appearance on grates or fire-irons, apply a mixture of tripoli, with half its quantity of sulphur, intimately mingled on a marble slab and laid on with a piece of soft leather; or emery and oil may be applied, with excellent effect; not laid on in the usual slovenly way, but with a spongy piece of the fig tree fully saturated with the mixture. This will not

only clean but polish, and render the use of whiting unnecessary.

Iron—To Test the Quality of.

Iron men of long experience are often able, or at least claim to be able, to tell the quality of iron by the eye alone. But the test of the eye in deciding the quality of any iron must not be definitely relied upon. It has been laid down that good wrought-iron should be silvery white, fibrous, having a fresh and somewhat reflex appearance in its fibres, silky; when carbon is in excess, it is claimed to have a bluish, and often gray, color; sulphur in excess, a dead color, with a tinge of blue; silica, phosphorus, and carbon in excess, a bright color, which is the more beautiful the more silica and phosphorus exist. But the luster of iron does not depend principally upon its color, for pure iron, though silvery white, reflects little light. A small quantity of carbon in chemical combination, as well as of phosphorus or silica, increases the brilliancy of its luster, while the luster is generally diminished by silica, lime, sulphur, magnesia, or carbon in larger quantities. The most reliable test is ductility and malleability, with a due admixture of the eye-test just described.

Iron Railings—Decay of.

Every one must have noticed the destructive combination of lead and iron, from railings being fixed in stone with the former metal. The reason for this is, that the oxygen of the atmosphere keeps up a galvanic action between the two metals. This waste may be prevented by substituting zinc for lead, in which case the galvanic influence would be inverted; the whole of its action would fall on the zinc; the one remaining uninjured, the other nearly so. Paint formed of the oxide of zinc, for the same reason, preserves iron exposed to the atmosphere in-

initely better than the ordinary paint, composed of the oxide of lead.

Iron Rust—To Remove.

Every particle of rust on iron may be removed by first softening it with petroleum, and then rubbing well with coarse sand-paper. To paint iron, take lamp-black sufficient for two coats, and mix with equal quantities of Japan varnish and boiled linseed oil.

Iron Slag Cement or Artificial Marble.

A new form of cement, of much value, may, it is said, be prepared by finely pulverizing the slag of iron furnaces, and passing this through a fine sieve. This powder is then to be mixed in a mill with calcined gypsum, to which a variable amount of soluble phosphate of lime has been previously added. The best proportion of the different ingredients is said to consist of 700 parts of gypsum and 300 of slag, to which, for use in the open air, 28 parts of soluble phosphate of lime are to be added. This, however, may be replaced by a corresponding quantity—six to fourteen parts—of phosphoric or boracic acid, or any other substance capable of combination with the iron. The superphosphate of lime may also be substituted for the soluble phosphate. For this, however, an equal quantity of slag must be used. On the other hand, if the quantity of soluble phosphate of lime is increased, the sulphate may be entirely omitted.

It is always necessary to have the different ingredients finely pulverized and well mixed. When used, a sufficient quantity of water is to be added, and the whole thoroughly stirred together. With these substances blocks can be made as hard as marble, and capable of imitating this substance very closely. For this purpose the necessary molds are to be laid upon a porous bed—gypsum, for

instance—and subjected, by means of a screw or hydraulic press, to a great pressure. The cement, thus compressed, is removed from the mold in the form of a very hard block, which takes as fine a polish as marble, and may be stained or colored previous to the pressure in such a way as closely to resemble the different colors of this rock. This artificial marble resists the influence of air, moisture and frost, and is said to be well adapted for the fronts of houses, floor tiles, etc.

Iron—Silvering.

Small articles of iron may be effectually silvered without battery thus: The articles are suspended in dilute sulphuric acid until the iron shows a clean, bright surface. After rinsing in pure water, they are placed in a bath of a mixed solution of sulphate of zinc, sulphate of copper and cyanide of potassium, and here remain until they receive a bright coating of brass. Lastly they are transferred to a bath of nitrate of silver, cyanide of potassium and sulphate of soda, in which they quickly receive a coating of silver.

Iron—To Tin.

To tin iron, clean the surface with dilute sulphuric acid—scratch-brushing if necessary—until the entire surface is bright. Take it from the acid, and dip it in a bath of hot limewater, and rub dry with bran or sawdust. Then dip it in melted tin, having upon its surface a stratum of melted tallow.

Iron Work—To Paint.

There is no protection for iron work so efficacious as well-boiled linseed oil, properly laid on. The iron should be first well cleaned and freed from all rust and dirt; the oil should be of the best quality, and well boiled, without litharge or any dryer being added. The iron should be painted over with this, but the oil must be laid on as bare as possible, and on this fact depends in a

great measure the success of the application, for if there be too thick a coat of oil put upon the work, it will skin over, be liable to blister, and scarcely ever get hard; but if iron be painted with three coats of oil, and only so much put on each coat as can be made to cover it by hard brushing, we will guarantee that the same will preserve the iron from the atmosphere for a much longer time than any other process of painting. If a dark coloring matter be necessary, we prefer burnt umber to any other pigment as a stain; it is a good hard dryer; has many other good properties; and mixes well with the oil without injuring it.

Iron—To Improve when Poor.

Black oxide of manganese 1 part; copperas and common salt 4 parts each; dissolve in soft water and boil until dry; when cool pulverize and mix quite freely with nice welding sand. When you have poor iron which you cannot afford to throw away, heat it and roll it in this mixture, working for a time, re-heating, etc.; it will soon be free from all impurities, which is the cause of its rottenness.

Iron—To Prevent Welding.

Where it is desired to weld two bars of iron together, for making axletrees or other purposes through which you wish to have a bolt-hole, without punching out a piece of the iron, you will take a piece of wet paste-board, the width of the bar and the length you desire not to weld, and place it between the two pieces of iron, and hold them firmly upon the pasteboard while taking the heat, and the iron will weld up to the pasteboard, but not where it is; then open the hole, with swedge and punch to the desired size.

Iron and Copper—Delicate Test for.

The alcoholic tincture of logwood will produce a blue or bluish-black tint in

water which has been run through iron or copper pipes, when neither tincture of galls, sulphocyanide, nor the ferric and ferrocyanides of potassium show any reaction.

Isinglass Glue—To Make.

This is made by dissolving beaten isinglass in water by boiling, and having strained it through a coarse linen cloth, evaporating it again to such a consistence, that, being cold, the glue will be perfectly hard and dry.

A great improvement is made in this glue by adding spirit of wine or brandy after it is strained, and then renewing the evaporation till it gains the due consistence.

Isinglass Size.

This may also be prepared in the manner above directed for the glue, by increasing the proportion of the water for dissolving it, and the same holds good of parchment size. A better sort of the common size may be likewise made by treating cuttings of gloves' leather in the same manner

Ivory—To Bleach.

First rub it with finely-ground pumice-stone and water. Then, while it is moist, expose it (under a bell-glass) to the sun, to prevent dryness and cracking. Repeat this until the desired effect is produced; or the ivory may be bleached by dipping it for a little while in water containing a small quantity of sulphurous acid, chlorine, or chloride of lime; or also, by exposing it, while moist, to fumes of burning sulphur, mixed with air to reduce their strength.

Ivory—To Make Artificial.

Make a fine paste of isinglass, finely powdered egg-shells and brandy. Impart the required color to it, and while it is warm pour it into well-oiled moulds, and leave it until it becomes hard.

Ivory—To Whiten.

Slake some lime in water; put your

ivory in that water, after being decanted from the grounds, and boil it till it looks quite white. To polish it afterwards, set in the turner's wheel; and, after having worked, take rushes and pumice stones, subtile powder, with water, and rub it till it looks perfectly smooth. Next to that, heat it by turning it against a piece of linen or sheepskin leather; and, when hot, rub it over with a little whiting diluted in oil of olive; then, with a little dry whiting alone; finally with a piece of soft white rag. When all this is performed as directed, the ivory will look very white.

Dr. Artus has published a process for whitening ivory, which he specially recommends for the finger pieces of pianos; but it is also applicable to all articles made of this material, which is so apt to change its color. After lying some days in a solution of carbonate of soda, the pieces must be thoroughly washed in clear water and again placed in a bath composed of three-quarters of a pound of sulphite of soda dissolved in two gallons of water, in which they must remain five or six hours. Then without taking them from the bath, a mixture of one ounce of hydrochloric acid and four ounces of water must be added to it. In this, after shaking it well and recovering the vessel, they must remain thirty-six hours. The solution is then thrown off and the ivory washed as before in clean water. If not as white as desired the operation must be repeated. The quantity of the solution that has been indicated is sufficient to whiten a pound of ivory.

When ivory ornaments get yellow or dusky-looking, wash them well in soap and water, with a small brush to clean the carvings, and place them while wet in full sunshine; wet them for two or three days, several times a day, with soapy water, still keeping

them in the sun; then wash them again, and they will be beautifully white.

Another.—Immerse the ivory in a saturated solution of alum and allow it to soften in it for an hour; then take it out, rub with a woolen cloth, wrap in a piece of linen to dry throughout, and polish afterward.

Another.—The ivory is heated in a thin paste of lime until it turns white, it is then dried and polished.

Jet—To Clean.

Use the softest brush that can be procured, to remove the dust in the most gentle manner from the carving, and then touch the jet with a little good oil on a bit of cotton wool, and polish with wash-leather. The process requires the greatest care, as the carving makes the jet so brittle.

Jewelry—To Clean.

Dissolve one ounce of cyanide of potassium in three gills of soft water. Turn up the end of a piece of brass or iron wire into a hook. Attach to it the article to be cleaned, and immerse it in the solution, shaking it backward and forward for a second or two, then take it out and rinse well in clean water. Wash it with warm water and soap to remove any film of cyanide that may remain; rinse again, dip into spirits of wine, and dry in boxwood sawdust. The advantage of dipping in spirits of wine is the immediate drying of the work without any sticking of the sawdust to it. When done with the solution, put it in a bottle and cork tightly. It may be used again and again for some months. Do not forget to label the bottle "Poison." One caution is necessary; do not bend over the solution so as to inhale its odor, nor dip the fingers in it; if one of the articles drops from the hook better empty the

Ivory—To Remove Stains from.

A little prepared white chalk, tinged with sweet oil and sal volatile into a paste; rub it on wet with a piece of wash-leather; let it remain until dry, then brush it off.

Ivory—Etching or Engraving on.

The ivory should be covered with wax, and then oil of vitriol used for etching fluid.

J

solution into another vessel. The cyanide is a violent poison, and although there is no danger in cautiously using it, carelessly inhaling it is injurious, and its absorption through the pores of the skin even more so.

Jewelry (Gilt)—To Clean.

Take a half pint of boiling water, or a little less, and put it into a clean oil flask. To this add one ounce of cyanide of potassium; shake the flask, and the cyanide will dissolve. When the liquid is cold, add half a fluid ounce of liquid ammonia, and one fluid ounce of rectified alcohol. Shake the mixture together, and it will be ready for use. All kinds of gilt articles, whether Birmingham ware or "articles de Paris," which have become discolored, may be rendered bright by brushing them with the above mentioned fluid.

Jewelers' Rouge.

Dissolve sulphate of iron in hot water, add a solution of pearl ash as long as any precipitate falls, wash this often with warm water, drain it, and calcine to a bright red color.

Another.—Precipitate a dilute solution of sulphate of iron, with ammonia in excess, wash and express the precipitate, then calcine it to redness. Used as a polishing powder, and for covering razor strops.

K

Kalsomining.

The rough, unfinished appearance of a white or yellow washed wall is not its most disagreeable peculiarity. It perpetually gives off its dirt, and its own fabric in powder, to any one who brushes it with his garments, or who hangs his clothes against it. The superior smoothness and glaze of a good kalsomined wall is a great improvement to the style of the interior of a house, and if well made, such a surface is suitable for the best rooms of a good house, and is so cheap as to be within the means of every one. It requires care and judgment in the selection of the not-expensive materials, and above all, capability and skill in applying it to the wall.

The plaster is made of Paris white, a fine powder produced by the pulverization and elutriation of common chalk, mixed with fine, clear, white glue, dissolved in water. The Paris white costs about three cents a pound, but the wandering operatives who apply for jobs ask a much higher price for it.

The process should be commenced by soaking four ounces of glue in a quart of warm water for twenty or twenty-four hours; then a pint of water should be added; and the vessel (of tin or other thin metal) should be placed in a kettle of hot water over a fire, the glue being agitated till it is thoroughly dissolved and the solution quite clear. Put five or six pounds of powdered Paris white into a large bucket, and add hot water sufficient for the mixture to be of the consistency of cream. Then mix the glue water with it, stir it well, and paint the walls with the mixture with the usual whitewash brush.

It is of the utmost importance that the kalsomining mixture be spread very smoothly, and to secure this, a

little hot water must be added, if the stuff be too thick for easy and level application. The quantities given above are sufficient for two coats on a large room, say one eighteen feet square, and for good work two coats should always be applied. A little care in manipulation will produce by kalsomining a neat and handsome effect, even in the hands of the most inexperienced operator.

Killing Grease.

Old work is always more or less greasy and smoky. Wash over the smoky or greasy parts with nitre, or with very thin lime whitewash. Soda will do, but lime is the best and cheapest.

Killing Knots.

Glue size and red lead. Gum shellac dissolved in alcohol, and mixed with red lead. Gutta-percha dissolved in ether. But through all or any of these will the pitch of the knot exude if exposed to the sun. Perhaps the very best method is, to size the knot with oil size, and then lay a leaf of gold or silver on it. In a very choice piece of work, a hot iron may be held over the knot till a good portion of the pitch has come out and been scraped off, when the two coats of the leaf will be sure to keep out both the pitch and any discoloration.

Knives—Butcher.

In forging out the knife, as you get it near to its proper thickness, be very careful not to heat it too high, and to water-hammer as for mill picks; when about to temper, heat only to a cherry-red and hold it in such a way that you can hold it plumb as you put it into the water, which prevents it from springing—put it plumb into the water and it will come out straight.

Take it from the water to the fire, and pass it through the blaze until a little hot; then rub a candle over it upon both sides and back to the fire, passing it backward and forward in the blaze, turning it over often to keep the heat even over the whole surface, until the tallow passes off, as though it went into the steel; then take out and rub the candle over it again (on both sides, each time) and back to the fire, passing it as before, until it starts into a blaze with a snap, being careful that the heat is even over the whole length and width of the tool, then rub the tallow over it again and back, three times, quickly as it burns off; and lastly rub the tallow over it again and push it into the dust of the forge, letting it remain until cold.

If these directions are followed with dexterity you will have the temper alike from edge to back; and the edge will be the best ever made.

Knives—To Clean.

Cut a good-sized solid, raw potato in two; dip the flat surface in powdered brick-dust, and rub the knife-blades. Stains and rust will disappear.

Another.—One of the best substances for cleaning knives and forks is charcoal, reduced to a fine powder, and applied in the same manner as brick dust is used.

Another.—Water lime is also used for this purpose. Have a box with a partition and keep the lime in one part and the cloths in the other. Wet a small cloth a little and dip it in the lime, and after the articles are well washed and wiped, rub them until the spots are removed. Then take a larger, dry cloth, dip it in the lime,

and rub the articles until polished to suit. Wipe off the dust from the knives and forks with a dry cloth, and they are ready to put away.

Knives—To Preserve from Rust.

Never wrap them in woolen cloths. When they are not to be used for some time, have them made bright and perfectly dry; then take a soft rag, and rub each blade with dry wood ashes.—Wrap them closely in brown paper, and lay them in a drawer or closet. A set of elegant knives, used only on great occasions, were kept in this way for over a hundred years without a spot of rust.

Knife Handles, Ivory—To Prevent Being Cracked.

Never let knife-blades stand in hot water, as is sometimes done to make them wash easily. The heat expands the steel which runs up into the handle a very little, and this cracks the ivory. Knife-handles should never lie in water. A handsome knife, or one used for cooking, is soon spoiled in this way.

Knife Handles (Loose)—To Fasten.

The best cement for this purpose consists of one pound of colophony (purchasable at the druggist's) and eight ounces of sulphur, which are to be melted together, and either kept in bars or reduced to powder. One part of the powder is to be mixed with half a part of iron filings, fine sand or brick dust, and the cavity of the handle is then to be filled with this mixture. The stem of the knife or fork is then firmly inserted and kept in position until the cement hardens.

L

Lace (Black)—To Clean.

Sponge the lace carefully with green tea, and wind it round and round a bottle to dry, for if touched with an iron it would look glossy and flattened. Some people fill the bottle with warm water, which causes the lace to dry more quickly. It must not be placed near the fire, as it would give it a rusty appearance.

Lace (Gold or Silver)—To Clean.

Lay the lace smooth on a woollen carpet or a piece of woollen cloth, and brush it free from dust, then burn rock alum and powder it fine, and afterwards sift it through a lawn sieve; then rub it over the lace with a fine brush, and in so doing it will take off the tarnish and restore it to its brightness, if it be not too much worn on the threads.

Another.—Grate the crumb part of a small loaf into fine crumbs and mix them with a quarter of a pound of powder-blue, sift some of the mixture over the lace, and then rub with a piece of flannel. Brush away the crumbs, and finally rub with a piece of red velvet.

Lace Veil—To Wash a White.

Put the veil into a strong lather of white soap and very clear water, and let it simmer slowly for a quarter of an hour; take it out and squeeze it well, but be sure not to rub it; rinse it twice in cold water, the second time with a drop or two of liquid blue. Have ready some very clear weak gum arabic water, or some thin starch, or rice water, pass the veil through it and clear it by clapping; then stretch it out evenly and pin it to dry on a linen cloth, making the edge as straight as possible, opening out all the scallops, and fastening each with pins. When dry, lay a piece of thin muslin smoothly over it, and iron it on the wrong side.

Lace—To Renovate.

Lace, we are told, may be restored to its original whiteness by first ironing it slightly, then folding it up neatly, and sewing it into a clean linen bag. This bag is now kept for twenty-four hours in pure olive oil, while in the meantime a strong solution of soap is made in water. The bag, on being taken out of the oil, is put into this boiling solution, and kept there for a quarter of an hour; after which it is taken out, well rinsed in lukewarm water, and then dipped into water containing a slight proportion of starch. All that remains to be done now is to take the lace out of the bag, iron it, and stretch it with pins till perfectly dry.

Lacquers.

Deep Golden Lacquer.—Seed-lac, 3 ozs.; tumeric, 1 oz.; dragon's-blood, $\frac{3}{4}$ oz.; alcohol, 1 pint. Digest for a week, shaking frequently; then decant and filter.

Golden Lacquer.—Turmeric, 1 lb.; gamboge, $1\frac{1}{2}$ ozs.; gum sandarac, $3\frac{1}{2}$ lbs.; shellac, $\frac{1}{4}$ lb. (all in powder); rectified alcohol, 2 gallons. Dissolve, strain, and add 1 pint of turpentine varnish.

Red Lacquer.—Spanish annotto, 3 lbs.; dragon's-blood, 1 lb.; gum sandarac, $3\frac{1}{4}$ lbs.; rectified alcohol, 2 gallons; turpentine varnish, 1 quart. Dissolve and mix as in the above.

Pale Brazen Lacquer.—Gamboge, (cut small) 1 oz.; cape aloes (do.) 3 ozs.; pale shellac, 1 lb.; rectified alcohol 2 gallons. Dissolve and mix, as in the second.

Another Brazen Lacquer.—Seed-lac, dragon's-blood, annotto, and gamboge, each, 4 ozs.; saffron, 1 oz.; rectified alcohol, 10 pints. Dissolve, etc., as in the second.

As these lacquers are often wanted

of different shades of color, it is well to keep on hand a concentrated solution of each coloring ingredient, so that it may be added at any time to produce the desired tint.

Lacquer—Colorless.

Dissolve $2\frac{1}{2}$ ounces of shellac in 1 pint of rectified spirits of wine; boil for a few minutes with 5 ounces of well-burned and recently heated animal charcoal. A small portion of the solution should then be filtered, and if not colorless, more charcoal must be added. When all color is removed, press the liquid through a piece of silk, and afterward filter through fine blotting paper.

Lacquered Articles—To Clean.

Brush with hot water and soap, wipe and dry before the fire; finish with a soft cloth. Avoid the use of pearl ash or soda, which may remove the lacquer.

Lambskins—To Prepare for Ladies' Coats.

Make a strong suds with hot water; let them get cold, and wash the skins, squeezing them carefully to get out all the dirt from the wool; wash the soap out with clean cold water, and cover them with water for 12 hours; then hang them over a pole to drain; when partially dry, stretch them carefully on a board, and when a little damp, sprinkle on them an ounce each of pulverized saltpeter and alum; lay the flesh sides together, and hang in the shade for two or three days, turning them over every day to bring the under skin uppermost till they are perfectly dry; then scrape the flesh side till all scraps of flesh are removed; rub it with pumice or rotten stone and with the hands; then lay the cloak pattern down on the flesh side of the skin, trace it round with a pencil, and cut it out with a sharp knife; overcast the edges together on the wrong side, and line with quilted silk. No collar, fur,

or trimming is worn with an astrachan or lambskin cloak.

Lamp Accidents—To Prevent.

Scarcely a week passes, during the winter months, but we read accounts of frightful accidents from kerosene lamps exploding and killing or scarring for life, women and children. A simple knowledge of the inflammable nature of the fluid, would probably put a stop to nearly all of the accidents. As the oil burns down in the lamp, a highly inflammable gas gathers over its surface, and as the oil decreases, the gas increases. When the oil is nearly consumed a slight jar will often inflame the gas, and an explosion is sure to follow, dealing death and destruction. A bombshell is not more to be dreaded. Now if the lamp is not allowed to burn more than half way down, such accidents are almost impossible. Always fill your lamps in the morning; then you never need fear an explosion.

The charred wick should also be cut off, for observation shows that in a few times using the wick becomes charred, and after the lamp has been burned a little time the tube becomes overheated, and the charred wick is all on fire. From this extra heat the oil is set on fire, and then comes an explosion.

It would seem as though no one need be told that it is dangerous to use any burning oil for the purpose of kindling a fire, but the frequent record of deaths from that practice, shows that great numbers follow that wasteful and dangerous way.

Lamps (Kerosene)—Turning Down the Wicks of.

Many people who use kerosene oil are in the habit of burning night-lamps, and turning them down as they would gas, not knowing how much mischief they thus do. When the light of the kerosene lamp is turned down low, the

combustion is not perfect, and the atmosphere of the room becomes vitiated by the unconsumed oil vapor, by the gas produced by combustion, and also legitimate particles of smoke and soot thrown off, to be taken into the lungs of the occupants. Air thus poisoned is deadly in its effects, and the wonder is that the people are not immediately and fatally injured by breathing it. Its consequences are the unaccountable and mysterious headaches, irritation of throat and lungs, dizziness and nausea.

Lampblack—To Make.

Suspend over a lamp a funnel of tin plate, having above it a pipe to convey from the apartment the smoke which escapes from the lamp. Large mushrooms, of a very black, carbonaceous matter, and exceedingly light, will be formed at the summit of the cone. This carbonaceous part is carried to such a state of division as cannot be given to any other matter, by grinding it on a piece of porphyry.

This black goes a great way in every kind of painting. It may be rendered drier by calcination in close vessels.

The funnel ought to be united to the pipe which conveys off the smoke, by means of wire, because solder would be melted by the flame of the lamp.

Lamps—To Clean.

Bronzed lamps should be wiped carefully; if oil be frequently spilled over them, it will cause the bronzing to be rubbed off sooner than it would disappear by wear. Brass lamps are best cleaned with erocus, or rotten stone and sweet oil. Lacquered lamps may be washed with soap and water, but should not be touched with acid, very strong lye or turpentine, else the lacquer will soon come off. When lamps are foul inside, wash them with potash and water, rinse them well; set them before the fire, and be sure

that they are dry before oil is again put into them.

Lamp Chimneys—To Clean.

Most people cleaning lamp chimneys, use either a brush made of bristles twisted into a wire, or a rag on the point of seissors. Both of these are bad; for, without great care, the wire, or seissors will scratch the glass as a diamond does, which under the expansive power of heat, soon breaks, as all scratched glass will. If you want a neat thing that costs nothing, and will save half your glass, tie a piece of soft sponge the size of your chimney to a pine stick.

Lamp Chimneys—To Prevent Breaking.

To prevent lamp glasses breaking by the sudden contact with heat, the best way is to cut or scratch the base of the glass with a glazier's diamond. Another method is to put the glasses into a saucepan of water and boil them. This seasons them.

Lamps—To Prevent Smoking.

Soak the wick in strong vinegar, and dry it well before you use it; it will then burn both sweet and pleasant, and give much satisfaction for the trifling trouble taken in preparing it.

Lampwicks—Home-Made.

A lamp wick, equally good with those we buy, may be made out of Canton flannel. Take a strip three times as wide as you wish the wick to be, and as long as you like. Fold it with the fleecy side in, so that it will have three thicknesses, and baste or overcast it up the side. Almost every housekeeper has bits of canton flannel which would be used for nothing else, and it saves quite a little item of expense, to say nothing of the convenience of being able to make a new lamp wick whenever it is needed.

Land—To Drain.

A strong metal pipe, about twenty feet in length and six inches in diameter, is adjusted in a slanting position over the lot to be drained. To an opening in the bottom of this pipe, another is firmly jointed, inclining backwards at an angle sufficient to allow of its end resting on the ground of the lot. Connected with the principal pipe, is a strong canvas hose, down which a current of water descends, and issues at the mouth of the pipe. In its course, it forms a vacuum in the second pipe, and the water is thus sucked up and discharged with the current flowing through the principal pipe. This device is in use, for the purpose described, in Australia, but is known to most men practically acquainted with hydraulics.

Latitude—Degrees of

Are about $69\frac{1}{2}$ miles, but degrees of longitude vary with the size of the earth in the particular latitude. At London they are about 37 miles, at Calcutta about 50.

Laugh—A Hearty.

"Laugh and grow fat" is a saying as old as the hills. It has long been an accepted fact that humor is a promoter of digestion and merry words the deadliest foes of disease. Dr. J. E. Kennedy, editor of the "Iowa Health Bulletin," writes an interesting article on the value of laughter, in which he shows it is not only a remedial agent, but is also a valuable preventive against a host of diseases. The physical effects of laughter are thus put down by Dr. Kennedy:

Laughter increases the blood circulation.

It enlarges the heart.

It expands the lungs.

It jiggers the diaphragm.

It promotes the functions of the spleen.

In other words, laughter stirs up the vital regions of the body, gives them healthful exercise and produces a mental exhilaration which acts upon the system much as a brisk walk in a crisp atmosphere does upon the appetite. As strong allies to laughter Dr. Kennedy gives the following directions for mental peace of mind:

Beware of theologians who have no sense of mirth. They are not altogether human.

Keep your chin up.

Don't take your troubles to bed with you. Hang them on a chair with your trousers or drop them in a glass of water with your teeth.

Dr. Kennedy has surely hit the nail on the head. If his prescription and advice are followed, his own bills will be decidedly cut down.

Laundry "Tips."

A spoonful of ox-gall in one gallon of water will set the colors of almost any goods soaked in it before washing. A teacup full of lye in a pail of water will improve the color of any black goods. Vinegar in the rinsing water will brighten pink or green calico, and soda will do the same for purple or blue calicoes.

Lavender Water.

Essence of musk, four drachms; essence of ambergris, four drachms; oil of cinnamon, ten drops; English lavender, six drachms; oil of geranium, two drachms; spirit of wine, twenty ounces. To be all mixed together.

Lavender Scent Bag.

Take of lavender flowers, free from stalk, half a pound; dried thyme and mint, of each half an ounce; ground cloves and caraway, of each a quarter of an ounce; common salt, dried, one ounce; mix the whole well together, and put the product into silk or cambric bags. In this way it will perfume the drawers and linen very nicely.

Law Suit—Requisites for a Successful.

A lady asked an attorney what were the requisites for going to law. He replied, "First, you must have a good cause; secondly, a good attorney; thirdly, good evidence; fourthly, a good jury; fifthly, a good judge; sixthly, a good pocketbook; and lastly, good luck."

Lawns—Keeping Grass.

Lawns must be kept rich, if you would have a good, fresh, green carpet of grass. Mowing them repeatedly, year after year, and raking off the fallen leaves that drop from the trees, which neatness demands, and which thus removes a useful top dressing, requires an occasional addition of manure. By far the best time to apply this manure is late in autumn. If spread earlier, it defaces the lawn at a time when it proves offensive. Fine, dry manure, which may be readily pulverized, is best, as it spreads evenly and neatly over the surface. But where this cannot be had, coarse or lumpy manure will answer a good purpose, if treated in the following manner: Spread it as evenly as may be convenient, and if there happens to be a sharp November freeze, followed by thaw, it will loosen the lumps and render them quite friable. Then immediately run a smoothing harrow over the ground, and it will grind these lumps to powder and spread them over the grass in better style than can be done by a skillful hand, and with great rapidity.

Lawns and Muslins—To Wash.

Delicate lawn and muslin dresses are so frequently spoiled by bad washing, the colors of the fabric yielding so readily to the action of soap, that it is well to adopt a new method of cleansing the finest materials, and imparting to them the appearance of newness.

Take two quarts of wheat bran and boil it for half an hour in soft water. Let it cool, then strain it, and pour the strained liquor into the water in which the dress is to be washed. Use no soap; one rinsing alone is required, and no starch. The bran water not only removes the dirt, and insures against change of color, but gives the fabric a pleasanter stiffness than any preparation of starch. If the folds are drawn from the skirts and sleeves, the dress will iron better; and will appear, when prepared in this way, as fresh as new.

Lead Pipes—To Protect.

It is recommended to provide them with a coat of sulphide of lead. Dissolve one half ounce of caustic soda in one and a half quarts of water mix the solution with one of one half-ounce of lead nitrate (or an equivalent of other lead salt soluble in water) in one half pint of water and heat the mixture to 195° F. As soon as a sufficient quantity of lead salt has been added the fluid becomes turbid, and must be very quickly filtered through asbestos or a similar material. To the clear fluid is added two and one-half ounces of hot water, containing one drachm of sulphocarbamide in solution. In using the fluid it is best to heat it to 150° F., and to hold the thoroughly cleansed lead pipe in it for a few moments, when it will be quickly coated with a fine layer of sulphide of lead. If the lead has been thoroughly cleansed, the sulphide of lead adheres very tenaciously and can be easily polished with a piece of leather.

Lead (White)—To Test.

Take a pine sliver, put some of the lead on the end of it, set it on fire; if pure, you will see the small shots of lead drop from it; if a white incrustation, you may know it is not pure. Rub this on a clean, white paper; if any lead is present it will black the paper;

if no lead is present it will be a pale, sulphur color.

Leak—To Stop a.

Beat yellow soap, and whiting, with a little water, into a thick paste. Rub this over the part where the leakage is and it will be instantly stopped.

Learn—Good Things to.

Learn to laugh. A good laugh is better than medicine. Learn to keep your troubles to yourself; the world is too busy to care for your ills and sorrows. Learn to stop croaking. If you cannot see any good in this world, keep the bad to yourself.

Learn to hide your aches and pains under a pleasant smile. Learn to attend strictly to your own business—a very important point. Learn to greet your friends with a smile. They carry too many frowns in their own hearts to be bothered with any of yours.

Do not keep young children in overheated rooms during bad weather or in the winter season. When they are kept in too much they become puny, weak, and ailing. Learn to train them so they can escape colds, coughs, sore throats, and such like troubles.

Feed them on good, substantial food, which contains all the elements necessary to produce strong bone, nerve, muscle and brain. Learn to treat them as the highest created animals—for they are such—but intelligent beings, to be loved dearer than any others.

Teach children to breathe through the nose, to sleep with the mouth shut, and to inhale plenty of fresh air by long inhalations. Teach them to sleep in the dark; it is better for their eyes and health. Never put their beds near windows.

Candy or sweets—bad at any time—should never be eaten before meals, as they destroy the appetite for other food. Learn that the supply of sugar

should be adjusted to that of other foods in a natural and sensible way.

Learn the botany of herbs, the chemistry of foods, the physiology of digestion, and the common sense of eating and drinking. It is a pleasing study, and a little knowledge gained every day will increase the interest in these things and add to your happiness.

Leap Year.

To ascertain if any year is leap year, divide it by 4, and if there be no remainder, it is a leap year; if there be a remainder, the number over indicates how many years it is after last leap year.

The even centuries are not reckoned as leap years, unless they can be divided by 400 without a remainder; thus, 1900 (which was the last year of the 19th century, not, as was commonly supposed the first year of the twentieth century since the last century began on Jan. 1, 1801, and ended on Dec. 31, 1900, was not a leap year, but 2000 will be one.

Leather (Black) of Old Furniture—To Restore.

Eggs, yolk and white well beaten, 6 parts; syrup, 1 part; isinglass, 1 part; water, 5 parts. Dissolve the isinglass in the water, then add it to the other articles. Mix well. Color with lamp-black. This also forms a good varnish for dress shoes.

Leather—Bronzing for.

A small amount of so-called insoluble (in water) aniline violet is dissolved in a little water, and the solution is brushed over the articles; it will dry quickly, and perhaps may have to be repeated.

Leather—To Gild or Silver.

In order to impress gilt figures, letters, and other marks upon leather, as on the covers of books, edgings for doors, etc., the leather must first be dusted over with very finely powdered

yellow resin or mastic gum. The iron tools or stamps are now arranged on a rack before a clear fire, so as to be well heated, without becoming red hot. If the tools are letters, they have an alphabetical arrangement on the rack. Each letter or stamp must be tried as to its heat, by imprinting its mark on the raw side of a piece of waste leather. A little practice will enable the workman to judge of the heat. The tool is now to be pressed downwards on the gold leaf, which will, of course, be indented, and show the figure imprinted on it. The next letter or stamp is now to be taken and stamped in like manner, and so on with the others, taking care to keep the letters in an even line with each other, like those in a book. By this operation the resin is melted, consequently the gold adheres to the leather. The superfluous gold may then be rubbed off by a cloth, the gilded impressions remaining on the leather. In this, as in every other operation, adroitness is acquired by practice.

The cloth alluded to should be slightly greasy, to retain the gold wiped off (otherwise there will be great waste in a few months); the cloth will thus be soon completely saturated or loaded with the gold. When this is the case, these cloths are generally sold to the refiners, who burn them and recover the gold. Some of these afford so much gold by burning as to be worth from seven to ten dollars.

Leather—Oiling.

Oils should not be applied to dry leather, as they will invariably injure it. If you wish to oil a harness, wet it over night, cover it with a blanket, and in the morning it will be dry and supple; then apply neat's-foot oil in small quantities, and with so much elbow grease as will insure its being absorbed throughout the leather. A soft, pliant harness is easier to handle, and lasts longer than a neglected one.

Never use vegetable oils on leather; and among animal oils, neat's-foot is the best.

Leather, French Patent.

Work into the skin with appropriate tools, three or four successive coatings of drying varnish, made by boiling linseed oil with white lead and litharge in the proportion of one pound of each of the latter to one gallon of the former, and adding a portion of chalk or ochre, each coating being thoroughly dried before the application of the rest. Ivory black is then substituted for the chalk or ochre, the varnish thinned with spirits of turpentine, and five additional applications made in the same manner as before, except that it is put on thin and not worked in. The leather is rubbed down with pumice-stone, in powder, and then placed in a room at 90 degrees, out of the way of dust. The last varnish is prepared by boiling $\frac{1}{2}$ lb. of asphaltum with 10 lbs. of the drying oil used in the first stage of the process, and then stirring in 5 lbs. copal varnish and 10 lbs. of turpentine. It must have one month's age before using it.

Leather—French Polish or Dressing for.

Mix 2 pts. best vinegar with 1 pt. soft water; stir into it $\frac{1}{4}$ lb. glue, broken up, $\frac{1}{2}$ lb. logwood chips, $\frac{1}{4}$ oz. of finely powdered indigo, $\frac{1}{4}$ oz. of the best soft soap, $\frac{1}{4}$ oz. of isinglass; put the mixture over the fire, and let it boil ten minutes or more; then strain, bottle and cork. When cold, it is fit for use. Apply with a sponge.

Leather (Enameled)—To Polish.

Two pints of the best cream; 1 pint of linseed oil; make them each lukewarm, and then mix them well together. Having previously cleaned the shoe from dirt, rub it over with a sponge dipped in the mixture; then rub it with

a soft dry cloth until a brilliant color is produced.

Leather—To Tan.

Soak the hide eight or nine days in water, then put it in lime; take it out, and remove the hair by rubbing it, and soak it in clear water until the lime is entirely out. Put one pound of alum to three of salt, dissolve in a vessel sufficiently large to hold the hide; soak the hide in it for three or four days, then take it out, let it get half dry, and then beat or rub until it is soft and pliable.

Leather (Patent) Goods— Polish For.

Take half a pound of molasses or sugar, one ounce of gum arabic, and two pounds of ivory black; boil them well together, then let the vessel stand until quite cooled, and the contents are settled; after which bottle up. This is an excellent reviver, and may be used as a blacking in the ordinary way, no brushes for polishing being required.

Leather (Patent)—Care of.

The old plan of washing them with milk is simply absurd—a waste of time. If they crack, brush a little blacking into the cracks, and then rub them over with French polish, or common furniture polish, using the finger to lay on the polish, and a soft dry rag to finish off with. In lieu of furniture polish, a mixture of sweet oil and turpentine will answer. This treatment will preserve their bright polish until they are utterly worn out.

Leather (Shoe)—Preservation of.

Shoe leather is generally abused. Persons know nothing or care less about the kind of material used than they do about the polish produced. Vitriol blacking is used until every particle of the oil in the leather is destroyed. To remedy this abuse, the leather should be washed once a month with warm water, and when about half

dry, a coat of oil and tallow should be applied, and the shoes set aside for a day or two. This will renew the elasticity and life in the leather, and when thus used upper leather will seldom crack or break.

Russia Leather owes its pleasant scent to the birch-bark oil with which it is prepared.

Leaves—To Take Impressions of.

Prepare two rubbers by tying up wool or any other soft substance in wash-leather; then prepare the colors in which you wish to print leaves, by rubbing up with cold drawn linseed oil the tints that are required, as indigo for blue, chrome for yellow, indigo or chrome for green, etc. Get a number of leaves the size and kind you wish to stamp, then dip the rubbers into paint, and rub them one over the other, so that you may have but a small quantity of the composition upon the rubbers. Having warmed a leaf between your hands, that it may be pliable, place it upon one rubber and moisten it gently with the other; take the leaf off and apply it to the substance on which you wish to make the imprint; upon the leaf place a piece of white paper, press gently, and a beautiful impression of all the veins of the leaf will be obtained.

Another.—Hold oiled paper in the smoke of a lamp or of pitch until it becomes coated with the smoke; to this paper apply the leaf of which you wish an impression, previously warming it between your hands, that it may be pliable. Place the lower surface of the leaf upon the blackened surface of the oil paper, that the numerous veins that are so prominent on this side may receive from the paper a portion of the smoke. Lay a paper over the leaf, and then press it gently upon the smoked paper with the fingers or with a small roller (covered with woolen cloth, or some like soft material), so that every

part of the leaf may come in contact with the sooted oil-paper. A coating of the smoke will adhere to the leaf. Then remove the leaf carefully, and place the blackened surface on a sheet of white paper, not ruled, or in a book prepared for the purpose, covering the leaf with a clean slip of paper, and pressing upon it with the fingers, or roller, as before. Thus may be obtained the impression of a leaf, showing the perfect outlines, together with an accurate exhibition of the veins which extend in every direction through it, more correctly than the finest drawing. And this process is so simple, and the materials so easily obtained, that any person, with a little practice to enable him to apply the right quantity of smoke to the oil paper, and give the leaf a proper pressure, can prepare beautiful leaf impressions, such as a naturalist would be proud to possess.

Leaf—To Make a Fac-Simile in Copper.

This beautiful experiment can be performed by any person in possession of a common galvanic battery. The process is as follows:—Soften a piece of gutta-percha over a candle, or before a fire; knead it with the moist fingers upon a table, until the surface is perfectly smooth, and large enough to cover the leaf to be copied; lay the leaf flat upon the surface, and press every part well into the gutta-percha. In about five minutes the leaf may be removed, when, if the operation has been carefully performed, a perfect impression of the leaf will be made on the gutta-percha. This must now be attached to the wire in connection with the zinc end of the battery (which can easily be done by heating the end of the wire, and pressing it into the gutta-percha), dusted well over with the best black lead, with a camel's hair brush—the object of which is to render it a conductor of electricity—and then

completely immersed in a saturated solution of sulphate of copper. A piece of copper attached to the wire in connection with the copper end of the battery, must also be inserted into the copper solution, facing the gutta-percha but not touching it; this not only acts as a conductor to the electricity, but also maintains the solution of copper of a permanent strength. In a short time, the copper will be found to creep over the whole surface of the gutta-percha, and in about twenty-four hours a thick deposit of copper will be obtained, which may then be detached from the mold. The accuracy with which a leaf may thus be cast is truly surprising. I have in my possession a cast of a hazel-leaf made by the process, which nobody would take to be a production of art; every fibre and nerve, in fact, the minutest part, is delineated with the utmost fidelity.

Leaves (Autumn)—To Preserve.

The beautiful colors of the leaves at this season are indicative of the first stage of decay. If rapidly dried, the process may be arrested and the fine colors preserved. Dry as quickly as possible, by putting the leaves between folds of any very absorbent paper, and change frequently—as often as once a day. A warm flat-iron judiciously used will help the drying, but overheating will spoil all. When the leaves are quickly and thoroughly dried, they will retain their colors for some months. In making up ornamental work, the leaves should have a light coat of boiled linseed oil. This brings out the color and gives a more natural appearance than varnish of any kind. For fastening them to cardboard or any other support, glue is best. Do not oil the under sides of the leaves, as this will prevent the glue from adhering.

Lemons—Salt of.

Take cream of tartar, 2 ounces, salt

of sorrel (quadroxalate of potassa) 4 ounces. Reduce both to fine powder and mix. To remove fruit stains and such like from linen, by rubbing a little of it on the part, moistened with warm water.

Lemons—Five Uses of.

Green's "Fruit Grower" gives the following five uses of lemons:

1. Lemon juice removes stains from the hands.
2. A dash of lemon in plain water is an excellent tooth wash. It removes tartar and sweetens the breath.
3. Two or three slices of lemon in a cup of strong tea will often cure a nervous headache.
4. Lemon juice (outside application) will allay the irritation caused by the bites of gnats and flies.
5. A teaspoonful of lemon juice in a small cup of black coffee will relieve a bilious headache.

Letter-Writing—Hints On.

At the head of your Letter, in the right-hand corner, put your address in full, with the day of the month underneath; do not omit this, though you may be writing to your most intimate friend for the third or even the fourth time in the course of a day.

What you have to say in your Letter, say as plainly as possible, as if you were speaking; this is the best rule. Do not revert three or four times to one circumstance, but finish as you go on.

Do not Cross your Letters; surely paper and postage are cheap enough now to admit of using an extra half sheet, in case of necessity. Frequent underlining of words is another fault, and is generally unnecessary. If your letter is properly expressed, the reader will supply the emphasis.

Let your Signature be written as plainly as possible (many mistakes will be avoided, especially in writing to strangers), and without any flourishes, as these do not add in any way to the

harmony of your letter. We have seen signatures that have been almost impossible to decipher, being a mere mass of strokes, without any form to indicate letters. This is done chiefly by the ignorant, and would lead one to suppose that they were ashamed of signing what they had written.

If you are not a good Writer it is advisable to use the best ink, paper and pens. For although they may not alter the character of your handwriting, yet they will assist to make your writing look better. The paper on which you write should be clean, and neatly folded.

If you write to a stranger for information, or on your own business, be sure to send a stamped envelope with your address plainly written; this will not fail to procure you an answer.

Let the direction be written very plainly; this will save the postman trouble, and facilitate business by preventing mistakes.

As this branch of epistolary correspondence is one of the most important, we subjoin a few additional hints which letter writers generally would do well to attend to.

When writing several letters, place each in its envelope, and address it as soon as it is written, otherwise awkward mistakes may occur, your correspondents receiving letters not intended for them.

When addressing a gentleman with the prefix "Mr." the Christian name or initials should always follow, being more polite, as well as avoiding confusion where persons of the same surname may reside in one house.

In addressing a letter to two or more unmarried ladies, write, "The Misses Johnson," and not "The Miss Johnsons"; and, lastly, always write an address clearly and legibly, so that it may not be delayed in delivery, nor be missent.

Lettuce in Winter.

It is said that heads of lettuce can be produced in winter in from 24 to 48 hours, by taking a box filled with rich earth, in which one-third part of slaked lime has been mixed, and watering the earth with lukewarm water; then taking seed which had been previously softened by soaking in strong brandy for twenty-four hours, and sowing in the usual way. We are assured, but will not vouch for the fact, that a good-sized head of lettuce may be obtained in the time mentioned.

Life—Rules For.

Benjamin Franklin the philosopher and statesman, gives the following list of virtues, to aid in living aright.

Temperance.—Eat not to dullness; drink not to elevation.

Silence.—Speak not but what may benefit others or yourself; avoid trifling conversation.

Order.—Let all your things have their places; let each part of your business have its time.

Resolution.—Resolve to perform what you ought; perform without fail what you resolve.

Frugality.—Make no expense but to do good to others or yourself; i. e., waste nothing.

Industry.—Lose no time; be always employed in something useful; cut off all unnecessary actions.

Sincerity.—Use no hurtful deceit; think innocently and justly; and if you speak, speak accordingly.

Justice.—Wrong none by doing injuries, or omitting the benefits that are your duty.

Moderation.—Avoid extremes; forbear resenting injuries so much as you think they deserve.

Cleanliness.—Tolerate no uncleanness in body, clothes, or habitation.

Tranquillity.—Be not disturbed at trifles, or at accidents, common or unavoidable.

Chastity.—Rarely use venery, but for health or offspring, never to dullness, weakness, or the injury of your own or another's peace or reputation.

Humility.—Imitate Jesus and Socrates.

Lights—Bengal.

Take nitrate of potassium (saltpetre) 8 parts; sublimed sulphur, 4 parts, and antimony, 1 part, and let them be well mixed in powder and beat firmly into a stout iron cup and set on fire; and if a little camphor be added it is still more brilliant. Such lights are made use of for communicating at a great distance by sea at night.

Light Bottle.

Dry phosphorous, 1 part; olive oil, 6 parts. Put them in a phial, cork it, and place it in warm water for two or three hours. For use, pull out the cork, and sufficient light will be emitted to enable you to see the time by a watch. One bottle will last for years if well corked as soon as used. Ether may be employed instead of olive oil.

Light—Electric.

This illuminant is fast coming into general use, and is in many respects superior to gas-lighting. It is cooler, cleaner, and in every respect handier. If we come home late at night from the theatre or elsewhere, and have an electric light in the hall, we have merely to press the button and there is a light at once.

Lamps—Incandescent.

These are the most suitable for lighting interiors of houses and other buildings, and are made in a variety of sizes and degrees of power, and combined with innumerable styles and designs of fittings, from quite plain to extremely ornamental and artistic.

Lightning Rods—How to Erect.

The rod should consist of round iron of about five-eighths of an inch in diameter; its parts, throughout its whole

length, should be in perfect metallic continuity, by being secured together by coupling ferrules. To secure it from rust the rod should be coated with black paint, itself a good conductor. It should terminate in a single platinum point. The shorter and more direct the course of the rod to the earth the better; bendings should be rounded, and not formed in acute angles. It should be fastened to the building by iron eyes, and may be insulated from these by cylinders of glass (I do not, however, consider the latter of much importance). The rod should be connected with the earth in the most perfect manner possible, and nothing is better for this purpose than to place it in metallic contact with the gas pipes, or better, the water pipes of the city. This connection may be made by a ribbon of copper or iron soldered to the end of the rod at one of its extremities, and wrapped around the pipe at the other. If a connection of this kind is impracticable, the rod should be continued horizontally to the nearest well, and then turned vertically downward until the end enters the water as deep as its lowest level. The horizontal part of the rod may be buried in a stratum of powdered charcoal and ashes. The rod should be placed, in preference, on the west side of the building. A rod of this kind may be put up by an ordinary blacksmith. The rod in question is in accordance with our latest knowledge of all the facts of electricity. Attempted improvements on it are worthless, and, as a general thing, are proposed by those who are but slightly acquainted with the subject.

Lime—To Burn Without a Kiln.

Make a pyramidal heap of large lime stones, with arched furnace next the ground for putting in the fuel, leaving a narrow vent or funnel at the top; now cover over the whole pile with

earth and turf, in the way that charcoal heaps are covered, and put in the fire. The heat will be more completely diffused through the pile if the aperture in the top is partially closed. This produces a superior article of lime.

Lime Water in Painting.

Equal parts of limewater and linseed oil, which will mix if well shaken, when united with any body matter, particularly lead, form a solid and almost imperishable cement, which for priming and second coating, or even the last coat, is far superior to oil paint. The color, however, works badly, as it is thick, light, and creamy, and harder to spread; and if fifty per cent. is saved in the oil, thirty per cent. is lost in time, and ten per cent. in the extra quantity used; so, after all, there is not much saved in its use.

Linen—Care of.

When linen is well dried and laid by for use, nothing is more necessary than to secure it from damp and insects. The latter may be agreeably performed by a judicious mixture of aromatic shrubs and flowers, cut up and sewed in silken bags, to be interspersed among the drawers and shelves. These ingredients may consist of lavender, thyme, roses, cedar shavings, powdered sassafras, cassia lignea, etc., into which a few drops of otto of roses, or other strong-scented perfume, may be thrown. In all cases, it will be found more consistent with economy to examine and repair all washable articles, more especially linen, that may stand in need of it, previous to sending them to the laundry. It will also be prudent to have every article carefully numbered, and so arranged, after washing, as to have their regular turn and term in domestic use.

Linen—To Remove Fruit Stains In.

To remove them, rub the part on each side with soap, then tie up a piece of pearlash in the cloth, etc., and soak well in hot water, or boil; afterwards expose the stained part to the sun and air until removed.

Linen—To Take Ink Out of.

Ink spots may be effectually removed from linen by a simple and ready process. Take a piece of tallow, melt it, and dip the spotted part of the linen into the tallow; the linen may be washed and the spot will disappear, the linen remaining uninjured.

Linen—To Take Marking-Ink Out of.

A saturated solution of cyanuret of potassium, applied with a camel's-hair brush. After the marking ink disappears, the linen should be well washed in cold water.

Linen—To Remove Mold From.

Spots of mold on fabrics can, it is said, be removed from cotton or linen, by first rubbing them over with butter and afterwards applying potassa moistened with a little water, and then rubbing the spot, when all traces of it will disappear.

Linen—Mildewed

May be restored by soaping the spots while wet, covering them with fine chalk scraped to powder, and rubbing it well in.

Linen—To Remove Stains From.

Stains caused by acids can be removed by wetting the part and laying it on some salt of wormwood; then rub it without diluting it with more water. Or, tie up in stained part some pearlash, then scrape some soap into cold, soft water, to make a lather, and boil the linen till the stain disappears. Recent stains of fruit may be removed by holding the linen tightly stretched over a tub and pouring hot water over the part. This must be done before any

soap has been applied to it. As soon as the stain is made on table linen, etc., rub on it common table salt, before it has had time to dry; the salt will keep it damp till the cloth is washed, when the stain will disappear; or, wash the stain lightly when the cloth is removed.

Linen—To Make Fire Proof.

A quantity of phosphoric acid and lime is dissolved in water; to this a little ammonia is added and the whole filtered and discolored with animal carbon. It is then put on the fire and left to evaporate until it is concentrated, when gelatine and five per cent. silicic acid is added, and again reduced by evaporation to a crystalline substance, which is dried and pulverized. This powder is called "Hottina," from the name of the inventor. The cloth to be made fire-proof is dipped in a solution made of thirty per cent. of the above powder, thirty-five per cent. of gum, and thirty-five per cent. of starch. The cloth, when dry, will be perfectly fire-proof, and preserve its color.

Linen (Scorched)—To Restore.

Take two onions, peel and skin them and extract the juice by squeezing or pounding. Then cut up half an ounce of white soap, and two ounces of fuller's earth; mix with them the onion juice and half a pint of vinegar. Boil the composition well, and spread it, when cool, over the scorched part of the linen, leaving it to dry thereon. Afterward wash out the linen.

Linen—To Remove Coffee Stains From.

Apply a mixture of egg yolk and glycerine, wash out with warm water, and iron, while damp, on the reverse side, with a fairly hot iron.

Linen, To Bleach—Discolored.

Let it lie on the grass exposed to the sun, air, and dews, day and night, as long as may be necessary.

* Linen (Table)—To Wash.

It is poor economy to boil or freeze table cloths if brown. It gives them an old yellow look. White ones may be kept clean by spreading for a few hours in the hot sun, or on the snow when the sun shines. If there are fruit stains on them, pour boiling water over them before washing. The boiling and freezing make them soft, and once hanging on the line in the air and freezing dry wears linen more than two weeks' constant use. A little starch should be added to the last water and they should be hung up straight on frames to dry. If they dry in a twist, they cannot be ironed smooth without extra pains.

Lines—Capping.

In this game the company sit round the room, and one is selected as Head of the class, and reads or speaks a line of poetry. He or she then challenges the next player to give the following line, and the name of the author. If he cannot do either he pays two forfeits; but if he can cap the line or give the author's name, he only pays one, goes to the top of the class and is exempted from all forfeits for the rest of the round. He then in his turn gives a line and so on through the game.

Example: — (First player) "The way was long, the wind was cold,"

(Second player) "The minstrel was infirm and old." (Scott).

Linoleum Oil Cloths, etc.

These are now very generally used as floor coverings for halls, kitchens, etc., on account of their cleanliness and warmth; and with proper care they may be made to last a long while, but the tile, or inlaid linoleum, though more expensive, will be found best suited for hard wear, as the pattern, instead of being merely on the surface, goes through the material. They are, as a rule made of canvas painted over. The best way to clean these floor

coverings is to wash them with soap and luke-warm water, and then rub them over with a cloth and a little oil. Do not use too much water, or it will get underneath and rot the material. In buying linoleum or oil cloth, test it by its weight, for the heavier it is the better it is.

Linseed Oil—To Bleach.

To bleach linseed oil expose the oil to the rays of the sun in glass bottles, and it very soon becomes white and clear, with a deposit of the impure matters at the bottom. Some persons filter the oil through animal charcoal. Another good method is to heat the oil in a wooden vessel by means of a steam pipe, having first added to each gallon about one pound of "filtering powder" made by drying pure clay of fuller's earth by a gentle heat and grinding it to powder. The oil must then be filtered through bags made of canton flannel or felt. Bags are now made from the latter material for this purpose, without seam, by the same process as that employed for hat bodies.

Lipogram.

From leipo, "I leave out", and gramma, a letter—is a riddle in which a name or sentence is written without its vowels, as: Thprffthpddngsnthng — The proof of the pudding is in the eating.

Whn hnrs lst ts—rlf t d,

Dths bt—sr rtrt fm nfmy

"When honor's lost 'tis a relief to die,
Death's but a sure retreat from infamy."

Live for Something.

"Thousands of men," says Chalmers, "breathe, move or live, pass off the stage of life, and are heard of no more—Why? they do not partake of good in the world, and none were blessed by them; none could point to them as the means of their redemption; not a line they wrote, not a word they spoke, could be recalled; and so they

perished; their light went out in darkness and they were not remembered more than insects of yesterday. Will you thus live and die, O man immortal?"

Logs and Planks—To Prevent the Splitting of.

Logs and planks split at the ends because the exposed surface dries faster than the inside. Saturate muriatic acid with lime, and apply like whitewash to the ends. The chloride of calcium formed, attracts moisture from the air, and prevents the splitting.

Logogriph.

This is a riddle (logos, a word, and griphos, a riddle), in which a word is made to undergo several changes. These changes are brought about by the addition, subtraction, omission, or substitution of a letter or letters. The following by the late Lord Macaulay is an excellent example:—

"Cut off my head, how singular I act!

Cut off my tail, and plural I appear.
Cut off my head and tail—most curious fact,

Although my middle's left, there's nothing there!
What is my head cut off?—a sounding sea!

What is my tail cut off?—a flowing river!

Amid their mingling depths I fearless play,

Parent of softest sounds, though mute for ever!

The answer is cod. Cut off its head and it is od (odd, singular); its tail, and it is Co., plural, for company; head and tail, and it is o, nothing. Its head is a sounding C (sea), its tail a flowing D (river Dee), and amid their depths the cod may fearless play, parent of softest sounds yet mute for ever.

Longevity.

Plutarch tells of the Ancient Britons

whose food was chiefly acorns, berries, and water, who only began to grow old at 120. Carnot at the age of 40 began to restrict his diet to 12 ozs. of food and 14 ozs. of drink daily. He lived to 104 years of age.

Peter Czartan, a Hungarian peasant, was born 1539, and died 1724. He lived 185 years. Thomas Parr, of Shropshire, is said to have lived 169 years. There are many deaths recorded of people who have lived over 100 years.

Almost all the people who live to a great age have been very poor. They did not have the variety and quantity of rich food that most people crave. This is a subject for thought and investigation.

Cato at 80 began to study the Greek language. Socrates at an extreme old age learned to play on musical instruments. Plutarch when between 70 and 80 began to learn Latin. The Earl of Dufferin, when over 70, began to learn the Persian language.

Looking Glasses—To Clean.

Take a newspaper, or part of one, according to the size of the glass. Fold it small, and dip it into a basin of clean cold water; when thoroughly wet, squeeze it out in your hand as you would a sponge, and then rub it hard all over the face of the glass, taking care that it is not so wet as to run down in streams. In fact, the paper must only be completely moistened, or damped all through. After the glass has been well rubbed with a wet paper, let it rest a few minutes, and then go over it with a fresh dry newspaper (folded small in your hand), till it looks clear and bright—which it will almost immediately, and with no further trouble.

This method, simple as it is, is the best and most expeditious for cleaning mirrors, and it will be found so on trial—giving it a clearness and polish

that can be produced by no other process. It is equally convenient, speedy, and effective. The inside of window frames may be cleaned in this manner to look beautifully clear; the windows being first washed on the outside.

Looking-Glasses—To Clean.

First wash the glass all over with lukewarm soapsuds and a sponge. When dry, rub it bright with a chamois leather on which a little prepared chalk, finely powdered, has been sprinkled.

Lovage.

Lovage root (fresh), 1 pound; valerian, $\frac{1}{4}$ pound; celery, $\frac{1}{4}$ pound; sweet fennel, $\frac{1}{4}$ pound; caraway seeds, 1 ounce; cassia, 1 ounce; proof-spirit, 12 gallons. Macerate for a week, then add loaf-sugar, 20 pounds, dissolved in water, 10 gallons. Mix and fine.

Lumber—Facts About.

Remember that drying lumber does not season it, and seasoning lumber is not drying it. Any amount of common air drying does not necessarily (if ever) produce a thorough shrinkage, even though the time be a hundred years. That time has nothing to do with either seasoning, shrinking or drying, but is alone the result of condition and heat. That lumber may be thoroughly seasoned without being either dried or shrunk.

That lumber may be made as dry

as desired, and yet not be seasoned at all, and with only a partial or very slight shrinkage. That common air never seasons lumber (though it dries it), and can never more than partially shrink the wood. That seasoning, shrinking and drying are each separate and distinct operations, and in most cases do not depend at all upon each other. That they are all necessary, though not in the same degree. That the ratio of their value to the wood is in the order named; the seasoning being of the greatest, and the drying of the least value.

Lye—To Make.

Have a large tub, or cask, and bore a hole in one side, for a tap, near the bottom; place several bricks near the hole, and cover them with straw. Fill the barrel with strong wood ashes. Oak ashes are strongest; and those of apple-tree wood make the whitest soap. Pour on boiling water until it begins to run, then put in the tap and let it soak. If the ashes settle down as they are wet, fill in until full.

Lye—White.

This is made by pouring a pailful of boiling water over 4 or 5 quarts of ashes. Let it stand a while to infuse; then pour in cold water to settle it, when you can pour it off clear. This is very good to boil dirty clothes in. When made nice, it is equal to soda, and does not, unless made extremely strong, injure the clothes.!

M

Madder-Lake Color.

Ground madder, 1 pound; water, 8 pounds. Boil for fifteen minutes, then add alum, 2 ounces. Dissolve and strain, then precipitate the color, with a strained solution of pearl ash, added gradually; lastly, collect and well wash the powder. The lake thrown down on the first addition of the potash is of

the finest quality, and each successive portion decreases in value.

Mahogany—To Imitate.

The surface of any close-grained wood is planed smooth, and then rubbed with a solution of nitrous acid. Next apply with a soft brush a mixture of one ounce of dragon's-blood dissolved in a pint of alcohol and with the

addition of a third of an ounce of carbonate of soda. When the polish diminishes in brilliancy, it may be restored by the use of a little cold-drawn linseed oil.

Mahogany Color for Wood.

Logwood, two ounces, is boiled down half with a pint of water, then strained, and the filtrate mixed with half an ounce of chloride of barium. Most woods employed for furniture may be stained a close imitation of mahogany, varying in depth with the length of immersion. An oak color results when the bath is diluted with rain water.

Mahogany Frames

Of sofas, chairs, etc., should be first well dusted, and then cleaned with a flannel dipped in sweet oil or linseed oil.

Mahogany Furniture—To Give a Good Color to.

Let the tables be washed perfectly clean with vinegar, having first taken out any ink-stains there may be, with spirits of salt. Use the following liquid: Into a pint of cold-drawn linseed oil, put a mixture of alkanet-root and rose pink in an earthen vessel; let it remain all night, then, stirring well, rub some of it all over the tables with a linen rag; when it has lain some time, rub it bright with linen cloths.

Mahogany—To Take Stains Out of.

Stains and spots may be taken out of mahogany with a little aquafortis or oxalic acid and water, rubbing the part with a cork dipped in the liquid till the color is restored. Then wash the wood well with water, and dry and polish as usual.

Mahogany—To Take Ink Stains Out of.

Put a few drops of spirits of nitre in a teaspoonful of water; touch the spot

with a feather dipped in the mixture, and as soon as the ink disappears, rub it over with a rag wet in cold water, or there will be a white mark, which will not be easily effaced.

Man—Average.

The average man weighs about 140 lbs., and his skeleton will weigh about 14 lbs. He has 240 bones, and the skeleton will measure about 1 inch less than the living man does. His brain weighs about $3\frac{1}{2}$ lbs., which is about $\frac{1}{2}$ lb. more than the average woman's, and twice as much as that of any other animal. He has 32 teeth, breathes about 20 times a minute, and uses about 7 hogsheads of air a day.

Manures.

There are two important requisites to the luxuriant and healthy growth of plants—plenty of nutriment, and a suitable place for growth. There are soils, it is true, so rich in the elements of plant food, and so bountifully supplied with those partially decayed remains of vegetable growth which we call humus, that decades of continued cropping do not suffice to exhaust their supply of the one, nor to rob them of the mellowness imparted by the other. Unfortunately, however, but little of the earth's surface is of this character, and the question: "How much and what sort of fertilizers shall we use?" is a very weighty one.

Manures—Stable.

Careful experiments by German agriculturists have demonstrated that the plant requires a certain list of substances for its nourishment, its food, such as nitrogen, carbon, potash, lime, soda, iron, phosphoric acid, sulphuric acid, and that as far as its nourishment alone is concerned, it is a matter of total indifference to the plant whether these are applied in the

form of stall manure, guanoes, or of superphosphates; the one and the only requisite being that these substances be present in the soil in sufficient quantity and in an assimilable form. Farmers followed the teachings of science in supplying food to plants in the form of artificial rather than natural fertilizers. Science had told them that the nitrogen and phosphoric acid of the one were just as nutritious as those of the other. But this was not all that science had to say. The use of a part of its teaching, and not the whole, was the mistake. The reason of the failure here is clear. Science informs us that the plant, like the animal, requires not only good and sufficient food, but also an appropriate place to grow in—or, in other words, that the physical character of the soil, its condition as regards warmth, moisture, compactness, or looseness, are just as important as its chemical contents, or the supply of nutritive elements it furnishes to the plant.

And it is precisely here that the superiority of stable manure appears. Not only is it a complete manure, furnishing all the elements of plant food, as special fertilizers do not, but it contains also a large amount of organic matter, undigested portions of the food of the animal, and straw used for bedding, and the like. This organic matter decays in the ground, and by its decay warms the soil, loosens it if it be too compact, and aids in binding it together if it be too loose, and assists in the working over of the mineral matter contained therein into a condition fit for the use of the plant.

The general rule to be deduced from the above facts would be, if tersely expressed, keep stock upon the farm to produce such an amount of stall manure as will be sufficient to keep the soil in good physical condition, and rely on artificial fertilizers

only to supply the still remaining deficiencies of plant nourishment.

Manure Heap—Management of.

Every manure heap consists of three portions, and all of these require very different means for their preservation. We have first the carbonaceous matter. This forms the chief bulk of every manure heap, and from the fact that it came originally from the atmosphere, and that it can be replaced from the same source, theorists who have not carefully watched the results attained in the practice, are apt to depreciate its value. It is not as valuable as the other two constituents, but it serves to bring the land into fine, friable, mellow condition, and it is by no means certain that the carbonic acid, furnished by its decomposition, is not a source of plant-food. Under any circumstances, however, it is well to be economical of it, and allow none to go to waste.

The second portion is the inorganic plant-food of animals. It consists of phosphoric acid, lime, potash, soda, magnesia, soluble silica, etc., and the great source of loss of these constituents is from their being washed out. They cannot evaporate, but if the rain and liquid manure are allowed to fall on a manure heap, and drain through it and out of it, the manure pile becomes a mere *caput mortuum*—a worthless residuum of originally valuable materials. Hence every barnyard where manure is kept exposed to the weather, should be hollowed out in the centre and well puddled, so as to prevent the soluble matters from draining or soaking away. Moreover, if the farm is located in a region where a great deal of rain falls, it is necessary to place a large portion of the barnyard under the cover of sheds, which prevent excessive wetting. Some moisture is absolutely necessary. Too much is decidedly injurious.

The third constituent of the manure heap is nitrogen. This is a substance of great and undoubted value, and every care should be taken to preserve and increase it. When vegetable substances containing nitrogen undergo putrefaction, in a moist state, the nitrogen in general becomes converted into ammonia. The same process of putrefaction, however, produces carbonic acid in large quantities, and this combines with the ammonia to form carbonate of ammonia. This salt is comparatively volatile, and if the manure is allowed to dry up, while exposed, to thin layers, the ammonia disappears. Several agents may be set to work to fix and retain it.

Water is one of these—carbonate of ammonia dissolves very readily in water, and does not then evaporate to the same extent that it would from a dry mass.

The great agent in the fixing of ammonia on the manure heap is the humic and similar acids produced during the decomposition of the straw. These acids do it very effectually, and hence the importance of mixing animal excrement with a large proportion of moist straw.

One of the most powerful fixers of ammonia is plaster, or sulphate of lime. When this meets carbonate of ammonia in solution, decomposition ensues. Carbonate of lime and sulphate of ammonia are formed, and as sulphate of ammonia is not volatile at ordinary temperatures, there is no danger of loss except by its being washed out.

Hence a few simple rules will enable us to manage a manure heap so as to avoid any very great loss:

1. Prevent all loss by drainage and soaking.
2. See that the animal excrements are covered with moist straw.
3. See that, while too much water

is avoided, there is a sufficiency to keep the manure moist.

4. Moisture and packing prevent fire-fanging—that is, too rapid fermentation.

5. If you find it convenient to use a few bushels of plaster, sprinkle them over the heap so that the plaster will be incorporated with the successive layers. It will thus prove of great service.

Manure—Applying.

In spreading manure, care should be taken to scatter it evenly over the land, breaking to pieces all large and hard lumps. This should always be done immediately, or not more than half a day, before plowing, especially if the weather is dry and very windy. The manure should be plowed under, before it dries very much, or loss will accrue. Another way is to plow the land first, and then put the manure on and harrow it in, if put on plowed land; if on meadow, spread on in early spring on the latest seeded piece. That ground is mellow, and when it rains it carries the manure down around the young roots, and the result is a heavy crop of grass.

Manure—Hen.

A mixture of hen dung, unleached wood ashes and plaster, frequently has a wonderful effect on plants. If the ashes and the hen manure are perfectly dry, no decomposition or chemical change will take place when they are mixed together. But if moist, more or less ammonia will escape, and the plaster will not hold it. The only advantage of mixing these articles together, aside from the ease of applying them, is probably this: When the dry hen-manure is thoroughly broken up fine, and mixed with the ashes and plaster, and applied in the hill, the moist soil soon induces chemical action. This produces more or less heat immediately under the seed and

favors germination; carbonate of ammonia would also be given off, and would be absorbed by the soil immediately in contact with the roots of the young plants, and would, if everything is favorable, cause them to grow rapidly and assume a dark green color. But care must be used in applying the mixture, or it may do more harm than good by burning the roots. It should be well mixed with the soil, and not come in direct contact with the seed. Some persons apply it on the hill after the plants are up, just as they frequently apply the plaster or ashes alone:

Manure—Leaves as.

Forest leaves are excellent to supply the stable yards, and, where straw is scarce, also the cow stables and hog-pens. They can be most conveniently gathered after the first snow, or at least before the wintry blasts have scattered them. They then lay compactly, and, being moist, can be handled with greater facility. Leaves absorb large quantities of liquid manure, and are an excellent fertilizer in spring. They can be gathered, too, when other labor about the farm is slack.

Manure—Liquid.

In every 100 lbs. of cow's urine there are 60 lbs. of water, 5 lbs. of urea, 5 lbs. of phosphate of lime, 12 lbs. of sal ammoniac and muriate of potash, and 10 lbs. carbonate of potash and ammonia, while the solid excrements obtained from one cow are estimated to manure three times the amount. Our dairy farmers will see, therefore, how important it is to have tanks connected with their stables in which to deposit this material, or a good supply of sawdust, dry earth, or muck, for absorbing it in the gutters of the stable. A careful and accurate farmer in Scotland has found that while 14 head of cattle would make six loads of solid manure the liquid would saturate 7 loads of loam, render-

ing it of equal value. He had repeated the experiment for 10 years, and found the saturated earth fully equal to the best putrescent manure.

Map Colors.

Blue.—A weak mixture of sulphate of indigo and water, to which add a little gum.

Green.—Dissolve crystals of verdigris in water, and add a little gum.

Another.—Dissolve sap green in water and add gum.

Red.—Make a decoction of Brazil dust in vinegar, and add a little gum and alum.

Another.—Make an infusion of cochineal and add a little gum.

Yellow.—Dissolve gamboge in water.

Another.—Make a decoction of French berries, strain, and add a little gum arabic.

Map Varnishes.

A very good varnish for covering over architectural drawings, maps, etc., can be made by dissolving one pound of white shellac, a quarter of a pound of camphor and two ounces of Canada balsam in one gallon of alcohol.

The following method affords also a good, quick-drying varnish. Thin down Canada balsam with turpentine, and add one fourth of the bulk of quick-drying, pale copal varnish; lay on smoothly with a flat camel's-hair brush, and let the map lie flat for a few hours.

Maps—To Waterproof Maps, Charts, &c.

Maps, charts or engravings may be effectually varnished by brushing a very delicate coating of gutta-percha solution over their surface. It is perfectly transparent, and is said to improve the appearance of pictures. By coating both sides of important documents they can be kept waterproof and preserved perfectly.

Maple Trees—To Tap.

Much injury is often ignorantly and thoughtlessly inflicted on sugar maple trees by excessive tapping, and various negligent practices in connection with the operation. As a guard against such malpractice the following rules will be useful: 1. Use nothing larger than a three-fourths inch auger or bitt. One-half to five-eighths of an inch is best. 2. Do not open the trees until they will run equally well on all sides. 3. Select the thriftiest part of the tree that is farthest from an old orifice. 4. Never put more than one spout to a tree that is less than one foot in diameter, nor more than one bucket to one less than 18 inches in diameter. 5. Never bore trees more than once in a season, but freshen them once, or any time after a long and hard freeze. 6. Never leave spouts in the trees a single day after they have done running. The quicker the orifices dry, the less they decay.

The following facts should also be remembered: The root of a tree will sometimes run more than the body. A healthy tree runs in proportion to the size of its top, and should be opened with respect to its capacity for production. Trees in open grounds, with spreading tops, discharge more and much sweeter liquid than those in the forest.

Marble—To Clean.

Brush the dust off the piece to be cleaned, then apply with a brush a good coat of gum arabic, about the consistency of a thick office mucilage. expose it to the sun or dry wind, or both. In a short time it will crack and peel off. If all the gum should not peel off, wash it with clean water and a clean cloth. Of course, if the first application does not have the desired effect, it should be applied again.

Another.—Make a paste with soft soap and whiting. Wash the marble first with it, and then leave a coat of the paste upon it for two or three days. Afterwards wash off with warm (not hot) water and soap.

Another.—Chalk (in fine powder), 1 part; pumice, 1 part; common soda, 2 parts. Mix. Wash the spots with this powder, mixed with a little water, then clean the whole of the stone, and wash off with soap and water.

Marble (Artificial)—For Paper Weights.

Soak plaster of Paris in a solution of alum; bake it in an oven, and then grind it to a powder. In using, mix with water, and to produce the clouds and veins, stir in any dry color you wish; this will become very hard and is susceptible of a very high polish.

Marble—To Cut and Polish.

The marble saw is a thin plate of soft iron, continually supplied, during its sawing motion, with water and the sharpest sand. The sawing of moderate-sized pieces is performed by hand; but that of large slabs is most economically done by a proper mill. The first substance used in the polishing process is the sharpest sand, which must be worked with till the surface becomes perfectly flat. Then a second, and even a third sand, of increasing fineness, is to be applied. The next substance is emery, of progressive degrees of fineness; after which, tripoli is employed: and the last polish is given with tin putty. The body with which the sand is rubbed upon the marble is usually a plate of iron; but, for the subsequent process, a plate of lead is used, with fine sand and emery. The polishing-rubbers are coarse linen cloths, or bagging, wedged tight into an iron planing-tool. In every step of the operation, a constant trickling supply of water is required.

Marble—Colors for Staining.

It is necessary to heat the marble hot, but not so hot as to injure it, the proper heat being that at which the colors nearly boil. Blue; alkaline indigo dye, or turnsole with alkali. Red; dragon's-blood in spirits of wine. Yellow; gamboge in spirits of wine. Gold Color; sal ammoniac, sulphate of zinc, and verdigris, equal parts. Green; sap green, in spirits of potash; Brown; tincture of logwood. Crimson; alkanet root in turpentine. Marble may be veined according to taste. To stain marble well is a difficult operation.

Marble and Glass—To Polish.

Marble of any kind, alabaster, and hard stone, or glass, may be repolished by rubbing it with a linen cloth dressed with oxide of tin (sold under the name of putty powder). For this purpose, a couple or more folds of linen should be fastened tight over a piece of wood, flat or otherwise, according to the form of the stone. To repolish a mantelpiece, it should be first perfectly cleaned. This is best done by making a paste of lime, soda, and water, wetting well the marble, and applying the paste. Then let it remain for a day or so, keeping it moist during the interval. When this paste has been removed, the polishing may begin. Chips in the the marble should be rubbed out first with emery and water. At every stage of polishing, the linen and putty powder must be kept constantly wet. Glass, such as jewelers' show-counter-cases, which becomes scratched, may be polished in the same way.

Marble—To Remove Grease or Oil in.

French chalk reduced to powder, dusted over the spot, and a hot flat-iron held very near, to soften the grease and make the chalk absorb it. If this will not do, try common clay

mixed with benzine smeared over the spot.

Marble—To Remove Smoke Stains from.

Take a large lump of Spanish whiting, soak it in water, not more than enough to moisten it, and put into the water a piece of washing soda; put some of this whiting on a flannel, and rub the marble repeatedly, leaving the whiting on for some hours. Wash it all off with soap and water, dry well, and polish with a soft duster.

Marble—To Remove the Stains of Iron From.

Carefully rub the spot only with strong hydrochloric acid. If the polish is taken off, it may be restored with emery paper and putty powder.

Marbles—To Imitate.

Paint the ground-work, and when dry and rubbed down, dampen the whole surface with boiled oil, rubbed on with a cloth. For the light marbles, however, some prefer to work the grain in the ground color while wet.

Marble—Gray and White.

This is very simple, though it requires some skill to do it nicely. Paint with white or lead color, and vein and mottle with black and slate color, in the wet paint, and blend it all down softly with a paint brush.

Marble—Italian.

Tools.—Camel's hair pencils, blender and sponge.

Ground.—Black.

Grain Color.—Gold tint, for bright veins. Burnt sienna, white and yellow ochre fluid, oil and turpentine.

Scramble out, in patches, using thin white lead, with a sponge; blend; then, with the hair pencil, trace in the larger dark veins with burnt sienna, then with yellow ochre, and lastly with the gold tint, running lines over each other, yet all having the same

general direction. It will be seen, from the specimens, that these veins are a series of irregular loopholes and patches of light, crossed and connected by sharp, crinkled, and angular lines, the whiter lines being the sharpest.

When veined and dry, glaze with very thin asphaltum, in patches, to give it depth. Then varnish, and, if desired, polish.

Massage—Methods of.

Place the balls of the fingers and the thumbs on the skin and pressing moderately, describe small circles. Grasp small pieces of flesh between the thumb and the fingers and give a sort of rolling but gentle pinch. With considerable pressure rub the skin, always rubbing toward the heart. Knead the flesh as though it were dough. Place the hands on the opposite sides of the leg and roll the muscles. A gentle slapping with the ends of the fingers is a good form of massage.

Matches—To Make.

Chlorate of potash and flowers of sulphur, each 10 parts; vermilion, 2 parts. Oil of turpentine to mix. Dip the ends of the matches previously sulphured and steeped in turpentine into this paste and dry.

Another.—Dip the end of the wood in hot melted sulphur, and let it dry. To 4 parts of melted glue, add while hot 1 part of phosphorus and stir in whiting to the desired thickness, color with lampblack; dipping in this mixture, which is to be kept hot by being suspended over a fire or lamp.

Another.—About the best known preparation for friction matches consists of gum arabic, 16 parts by weight; phosphorus, 9 parts; nitre, 14 parts; peroxide of manganese, in powder, 16 parts. The gum is first made into a mucilage with water,

then the manganese, then the phosphorus, and the whole is heated to about 130 deg. Fah. When the phosphorus is melted the nitre is added, and the whole is thoroughly stirred.

Matting and Oil Cloth—To Brighten.

Wash it twice during the summer with salt and water, say about a pint of salt, dissolved in half a pailful of warm soft water, drying the matting quickly with a soft cloth. The salt will prevent it from turning yellow. Another plan is, after the oilcloth is scrubbed and dried, to rub it all over with a cloth dipped in milk. This will bring the colors out very bright.

Meadows—Worn Out.

There is no more profitable field belonging to the farm than a good meadow, and yet comparatively few farmers understand the art of keeping them in a productive state. Meadows become worn out, and consequently unprofitable, from two causes—namely, from want of proper manures, or from “fog”. The first is easily remedied by spreading a light coat of chaff of any kind over the sod, any time between November and the middle of April, as this is not only the best manure for meadows, but must not be put on farm lands at any time, as it contains a great quantity of the seeds of noxious plants that greatly thin, and sometimes almost destroy, the grain crop. The second is effectually and permanently destroyed and converted into a highly nutritious manure by a top-dressing of lime, say twenty bushels to the acre.

Measure—Cubic.

A load of earth contains a cubic yard, and weighs about 3,350 pounds.

A pile of wood 4 feet wide, 4 feet high and 8 feet long contains 1 cord;

and a cord foot is one foot in length in such a pile.

A perch of stone or masonry is $16\frac{1}{2}$ feet long, $1\frac{1}{2}$ feet wide and 1 foot high and contains $24\frac{3}{4}$ cubic feet.

A brick is usually 8 inches long, 4 inches wide and 2 inches thick, hence 27 bricks make a cubic foot.

Measure Land—How to.

A square acre is about 208 feet $8\frac{1}{2}$ inches on every side.

In order to lay out one acre of land four times as long as the width, the length must be 417 feet 5 inches, and the width 104 feet 4 inches.

Twenty feet front and 2,187 feet deep is one acre.

Twenty-five feet front and 1,742 $\frac{1}{4}$ feet deep is one acre.

Thirty-three feet front and 1,320 feet deep is one acre.

Forty feet front and 1,089 feet deep is one acre.

Fifty feet front and 876 $\frac{1}{2}$ feet deep is one acre.

On hundred feet front and 435 $\frac{1}{2}$ feet deep is one acre.

In one square acre there are 43,560 superficial feet.

Measures—Table of.

A barrel contains 40 gallons, of 231 cubic inches each, or 9240 cubic inches.

The United States standard bushel is the Winchester; its regular dimensions are a cylinder of 18.5 inches, interior diameter, and 8 inches deep; its cubic contents are, therefore, $9.25 \times 9.25 \times 3.1416 \times 8$, or nearly 2150.5 cubic inches.

The United States standard gallon measures 231 cubic inches; consequently a box, 24 inches by 24 inches square, and 16 inches deep, will contain 9232 cubic inches, or nearly a barrel.

A box, $17\frac{3}{4}$ by 15 inches, and 8 inches deep, will contain 2130 cubic inches, or nearly a bushel.

A box, $14\frac{1}{3}$ by 10 inches, and $7\frac{1}{2}$

inches deep, will contain 1075 cubic inches, or half a bushel.

A box, 8 by 8 inches square, and $8\frac{5}{8}$ inches deep, will contain 538 cubic inches, or a peck, very nearly.

A box, 7 by 8 inches, and $4\frac{1}{8}$ inches deep, will contain 231 cubic inches, or a gallon exactly.

A box, 6 by 6 inches square, and $3\frac{1}{4}$ inches deep, will contain 117 cubic inches, or nearly half a gallon, (of $115\frac{1}{2}$ cubic inches).

A box, 4 by 4 inches square, and $3\frac{1}{2}$ inches deep, will contain 56 cubic inches, or nearly a pint (of $57\frac{3}{4}$ cubic inches).

Meat—Phenyl Paper to Preserve.

This article would be useful for packing meat and other substances liable to decay. It can be prepared by fusing five parts stearic acid at a gentle heat, mixing well with two parts carbolic acid and five parts melted paraffine, and stirring until the whole has become solid, and applying in the same manner as wax paper is made.

Medals—Molds for.

Take a thin piece of wood, of the thickness of the cast around the edge. Then cut a hole and fit in the metal perfectly. Dampen some soft newspaper, and spread over the face. Beat to a pulp about one-eighth inch thick all over one face of the medal, and about one-half inch around on the wood. Now spread some more over without beating, and clamp fast to the wood. Dry by the fire perfectly. The pulp will remove when dry. Then operate the other side in the same manner. You will then have molds more perfect than can be made in any other way I know of, except they are made of metal. Take out the medal, and place the papers in position, making a vent through the wood for air and gases. You need not be afraid of the paper's burning.

Medical Suggestions in Emergencies.

Ague.—As a preventive, give five grains of quinine every morning. As a cure, act on the bowels, give ten grains of quinine three times a day, and a vapor bath every evening.

Apoplexy.—Act on the bowels, apply wet cloths to the head, undo the collar.

Bites of snakes, mad dogs, etc.—Apply a ligature (a cord) on the side nearest the heart; suck the wound, scratch the edges with a penknife, and apply caustic or carbolic acid to the wound.

Burns.—Place the injured part in a natural position, and apply cloths soaked in oil.

Colic and Diarrhœa.—Give 20 drops of chlorodyne in a little brandy and water.

Dysentery.—A small teaspoonful of ipecacuanha, and a powder of opium, $\frac{1}{2}$ gr., every two hours.

Drunkenness.—An emetic of a teaspoonful of mustard in water, and douche the head in cold water.

Delirium Tremens.—Act on the bowels, beef-tea every half hour, 20 grains of chloral in water as a sleeping draught.

Emetics.—Substances which cause vomiting. A tablespoonful of salt, or mustard and water; an ounce of ipecacuanha wine; 15 grains of sulphate of zinc in water.

Fainting from loss of blood, weakness, or shock.—Keep the body in the lying position; undo the dress; give plenty of air; sprinkle the face and chest with cold water; apply smelling salts to nostrils.

Fits.—Loosen the clothing about the neck; fresh air, and prevent patient from injuring himself.

Frostbite.—Avoid heat, and restore circulation in the part by rubbing the skin.

Rheumatism.—Avoid its causes: wet clothes, damp ground, liquor. Celery is said to relieve, if not wholly cure, this painful complaint: cut the celery into pieces, and boil in water till soft, and let the sufferer drink the water. Put new milk, with a little flour and nutmeg, into a saucepan with boiled celery, serve it warm with pieces of toast; eat it with potatoes.

Scalds.—Smear with a solution of lime and oil, and envelop in cotton wool.

Sprains.—Elevate and rest limb; apply cold-water cloths.

Sunstroke.—Loosen dress at neck; act on bowels; cold water to the head.

(See Medical Department.)

Melons.

First give the ground a good coat of fine manure, thoroughly dig or plow the ground, and then level with a rake or otherwise. Then make a marker, by taking any piece of wood that will not bend, eight feet long; fasten two pegs to this, seven feet apart, and nail a handle in the center, bracing it both ways; then draw a tight line for the first mark, drawing the marker the first time through with one peg against the line; the next time through, but one peg run in the last mark; then you get all perfectly straight. Mark across these in the same manner, and then place on each corner or hill two shovelfuls of well rotted manure; take the digging fork and mix with the soil thoroughly to the depth of the fork tines. After this take the rake and rake the soil on top of this to the depth of three inches, which makes a hill a little higher than the surface of the ground.

The seed should not be planted till the ground gets thoroughly warm—say the last of May or the first of June in this section. Too early planting is one cause of failure. Then stick nine seeds in each hill. As soon as they

come up, sprinkle a little plaster on the plants while the dew is on, to keep the bugs off; do this as often as the plaster gets off, until the plants get to be of good size, and then thin out to four plants in a hill. When these begin to run nicely, pinch off the tip end of the runners, which will cause them to throw out side runners; pinch these in the same manner; keep the ground well cultivated and free from weeds till the vines take possession. If treated in this manner they will cover the ground completely, and you will have, from a small patch, watermelons by the hundred, while others, pursuing a different course, will frequently lose all their plants by the dry weather, because they had no manure pile underneath the plants.

Melons and Cucumbers— Barrel Culture for.

The plan recommended is to take a tight barrel or cask, remove one head, and partially fill the barrel or cask with large pebbles or stones—say half full; upon these stones place a mixture of compost with rich alluvial soil, or fine, fresh vegetable mold, until the barrel or cask is filled to within three or four inches of the top, and in this plant the seed and cover to the requisite depth. This barrel or cask may be set in any convenient situation where sufficient room or space can be obtained, and around which arrange lattice work or brush to sustain the outspreading plants, in whatever manner may be found most convenient for affording access at all times to both the barrel and the plants.

Upon the outer side of the cask insert a pipe of convenient size, through which water may be introduced to the lower or under half of the barrel daily, or as often as occasion may require; this portion of the cask should be kept constantly filled with water. Midway of the cask the staves should be per-

forated with several half-inch holes, for the free escape of any surplus water, and at the same time to permit the admission of an equal distribution of air; the purpose would be better accomplished if the holes were bored upon a line at equal distances apart around the cask.

The effect of this arrangement, as will be very readily seen, is that, through the capillary attraction of the soil, sufficient moisture is absorbed at all times to nourish the plants, while the admission of air can be controlled at pleasure by opening or closing the apertures upon the sides of the cask.

As to the production of cucumbers alone under this plan, it has been found to greatly exceed any other; the yield, under proper management, from one "generating tub" has been found amply sufficient to fill a closely packed barrel with salted pickles.

Memory Rhymes.

Birthdays.

Monday for health,
Tuesday for wealth,
Wednesday best of all;
Thursday for crosses,
Friday for losses,
Saturday no luck at all.

Days in Each Month.

Thirty days hath September,
April, June, and November;
All the rest have thirty-one,
February alone hath twenty-eight.
Except in leap year twenty-nine.

Bees.

A swarm of bees in May,
Is worth a load of hay;
A swarm of bees in June,
Is worth a silver spoon;
A swarm of bees in July,
Is not worth a fly.

Rules for Riding.

Keep your head and your heart well up,
Your hands and your heels keep down;

Press your knees close to your horse's side,
And your elbows close to your own.

Metagram.

A riddle in which the change of the initial letter produces a series of words of different meanings; from meta, implying change, and gramma, a letter. Thus:

I cover your head; change my head, and I set you to sleep; change it again and again, and with every change comes a new idea.—Cap, Nap, Gap, Sap, Hap, Map, Lap, Pap, Rap, Tap. This kind of riddle is also known as word-capping.

Metals—Casting.

Any design, whether in high or low relief, chased on metal of any required pattern or shape, whether flat as a door-plate or round as a vase, can be reproduced by casting *ad infinitum*, and each casting will show upon it all the sharpness of the original chasing. Molds are made with a preparation of fine clay. The making of one of these molds takes from five to ten minutes. They have then to stand twenty-four hours exposed to dry air, after which they are baked in a furnace for eight hours. These clay molds, into which the metal is afterwards poured, are, to all intents and purpose, encaustic tiles. The molds are placed in a box, and the air is extracted from them so as to form a vacuum, after which the molten metal is forced into them; and in this way in ten minutes a casting can be completed. When the casting is taken out, the design, however intricate, is found to be perfectly represented, with the exception of removing a slight surface of clay from it, which can be done in half an hour, and the article is then ready to be sent to the bronzer, instead of having to be put in the chaser's hands. In this way an enormous amount of cost and labor on ornamental articles in metals is saved.

Metal—To Clean.

Mix $\frac{1}{2}$ pint of refined neat's-foot oil, and $\frac{1}{2}$ a gill of spirit of turpentine. Scrape a little rotten-stone; wet a woolen rag with the liquid, dip it into the scraped kernel, and rub the metal well. Wipe it off with a soft cloth, polish with dry leather, and use more of the kernel. In respect to steel, if it is very rusty, use a little powder of pumice with the liquid, on a separate woolen rag first.

Metals—Paste for Cleaning.

Take oxalic acid, 1 part; rotten-stone 6 parts. Mix with equal parts of train oil and spirits of turpentine to a paste.

Metals—Fancy Coloring for.

1. A solution is made in the following manner: Dissolve four ounces of the hyposulphite of soda in one and a half pints of water, and then add a solution of one ounce of acetate of lead in the same quantity of water. Articles to be colored are placed in the mixture, which is then gradually heated to boiling point. The object of this solution is to give iron the effect of blue steel; zinc becomes bronze; and copper or brass becomes successively yellowish, red, scarlet, deep blue, light blue, bluish white, and, finally, white, with a tinge of rose. This solution has no effect on lead or tin.—2. By replacing the acetate of lead in the solution by sulphate of copper, brass becomes first of a fine rosy tint, then green, and finally of an iridescent brown color. Zinc does not color in this solution—it throws down a precipitate of brown sulphuret of copper; but if boiled in a solution containing both lead and copper, it becomes covered with a black adherent crust, which may be improved by a thin coating of wax.—3. If the lead solution be thickened with a little gum tragacanth, and patterns be traced with it on brass which is afterward heated to two hundred and twelve

degrees, and then plunged in solution No. 1, a good marked effect is produced.

Metallique Moiree—A Method of Ornamenting the Surface of Tin Plate by Acid.

The plates are washed by an alkaline solution, then in water, heated, and sponged or sprinkled with the acid solution. The appearance varies with the degree of heat and the nature and strength of the acids employed. The plates, after the application of the acids, are plunged into water slightly acidulated, dried, and covered with white or colored varnishes. The following are some of the acid mixtures used: Nitro-muriatic acid, in different degrees of dilution; sulphuric acid, with 5 parts of water; 1 part of sulphuric acid, 2 of muriatic acid, and 8 of water; a strong solution of citric acid; 1 part of nitric acid, 2 of sulphuric acid, and 18 of water. Solution of potash is also used.

Metal—Staining.

The following receipts have all been tested in the laboratory of Dr. Winckler by a practical armorer and given excellent results:

Blue Stain on Iron and Steel.—Polish and cleanse the steel thoroughly with lime, and then brush it over with the following mixture: Butter of antimony 8 parts, fuming nitric acid 8 parts, and muriatic acid 16 parts. Add the spirit of salt very slowly and drop by drop, to avoid too strong heating. Apply the mixture to the steel with a rag, and rub it with green, young oak wood until the desired blue color is produced.

Gray Stain on Steel and Iron.—Polish the steel and coat it with a mixture of butter of antimony 8 parts and sulphuric acid 2 parts. If the color does not turn out handsome enough, add a few drops of empyreumatic pyroligneous acid or gallic acid.

Metal Sheathing for Ships.

Best selected copper, 60 parts; best zinc, 40 parts; melt together in the usual manner, and roll into sheets of suitable thickness. This composition resists oxidation from exposure to sea-water, and prevents the adhesion of barnacles.

Metal (Specula)—For Telescopes.

Melt 7 lbs. of copper, and when fused add 3 lbs. of zinc and 4 lbs. of tin. These metals will combine to form a beautiful alloy of great lustre, and of a light yellow color, fitted to be made into specula for telescopes. Mr. Mudge used only copper and grain tin, in the proportion of 2 lbs. to 14½ ounces.

Metal—Printers' Type.

Put into a crucible 10 lbs. of lead, and when it is in a state of fusion, throw in 2 lbs. of antimony; these metals, in such proportions, form the alloy of which common printing types are made. The antimony gives a hardness to the lead, without which type would speedily be rendered useless in a printing press. Different proportions of lead, copper, brass, and antimony, frequently constitute this metal. Every artist has his own proportions, so that the same composition cannot be obtained from different foundries; each boasts of the superiority of his own mixture.

Metal—White.

1. Melt together 10 oz. of lead, 5 oz. of bismuth, and 4 drs. of regulus of antimony.—2. Melt together 2 lbs. of regulus of antimony, 8 oz. of brass, and 10 oz. of tin.

Metals—Writing Inscriptions on.

Take ½ lb. of nitric acid and 1 oz. of muriatic acid. Mix, shake well together, and it is ready for use. Cover the place you wish to mark with melted beeswax; when cold, write your inscription plainly in the wax clear to the metal with a sharp instrument; then apply the mixed acids with a

feather, carefully filling each letter. Let it remain from one to ten minutes according to appearance desired; then throw in water, which stops the process, and remove the wax.

Mice—To Drive Away.

Gather any kind of mint and scatter it about your shelves, and they will forsake the premises. See also "Rats."

Mice—To Get Rid of.

To get rid of mice, use tartar emetic, mingled with any favorite food; they take it, get sick, and take their leave.

Microscope—Home-Made.

A simple microscope may be made out of a common pill-box for a few cents. Take out the bottom and put in a piece of window-glass; then paint the inside black, and make a small eye-hole in the lid. In this hole place a single drop of Canadian balsam, and allow it to cool. This drop of the transparent resin assumes, when cooling, the proper form of the glass lens, with considerable magnifying power.

Microscopical Objects—Mounting Fluid for.

Best gelatine, 1 oz., honey, 5 oz., distilled water, 5 oz., rectified spirit, $\frac{1}{2}$ oz., creosote, 6 drops. Dissolve the gelatine in the water by heat, and add to it the honey, previously made boiling hot. When cooled a little, add the creosote dissolved in the spirit, and, while still hot, filter through coarse filtering paper, or fine flannel. For use, the bottle in which it is contained may be set in a vessel of hot water.

Milk—To Detect When Adulterated.

The cheapest and easiest method of adulterating milk is by adding water, and we may readily ascertain the exact extent of adulteration by the following plan. If a glass tube, divided into 100 parts, be filled with milk and left standing for 24 hours, the cream

will rise to the upper part of the tube, and occupy from 11 to 13 divisions, if the milk is genuine.

Milk—Condensed.

Condensed Milk is milk preserved by evaporating parts of its moisture and sometimes mixing with refined powdered sugar, and packing in air-tight cans.

Mildew.

This term is generally applied to a particular moldy appearance on the leaves of plants, which is produced by innumerable minute fungi, which, if not checked in their growth, will occasion the decay and death of the parts on which they grow, and sometimes of the entire plant. In agriculture this appearance is frequently termed rust, and sometimes blight. It is common on wheat and on the hops; and in gardens on the leaves of the peach, the nectarine, and other fruit trees. The causes favorable to the production of mildew, are a rich soil and a moist atmosphere, without a free circulation of air or sunshine. In agriculture this parasitical disease is generally considered without remedy; but in gardening it may be checked by the application of powdered sulphur to the leaves covered by the fungi, which is found to destroy them without greatly injuring the leaf. Dry rot is only mildew of a more formidable kind.

Mildew on Cloth—To Remove.

Mix soft soap with powdered starch, half as much salt, and the juice of a lemon; lay the mixture on both sides of the stain with a painter's brush; let it lie on the grass day and night till the mildew mark disappears.

Mink Breeding.

We give the following experience of a gentleman in Vermont: "I purchased one female and her litter of five, two males and four females in all, and constructed a building of rough boards,

10 by 4 feet, for a minkery. It had a floor tight enough to prevent the escape of the animals; was properly ventilated, and divided into 6 apartments, one of which is an ante-room into which to step from the outside and close the door. Water is supplied by a lead pipe running in at one side, through all the rooms, and out at the other into a trough where small fish are kept, and occasionally given to the minks. They were kept together until December the 18th, when the males were put in an apartment by themselves. On the 10th of March each male was put in with a female, each pair separate and after a couple of days one of the males was put in with another female, and finally with the third. They were separated about the 1st of April, each female being kept alone and supplied with a suitable box, with warm material for a nest. When it was supposed they were about to bring forth their young, they were disturbed as little as possible; anything to excite them at this time, should be avoided, for when irritated, they will sometimes eat their young. The first female put with the perfect male brought forth seven, one of which disappeared after they began to crawl around out of their nest. The other two females had each a pair, all of which (but the one mentioned) are now alive, fine, fat, sleek fellows, and fully grown. They are very easily kept, being fed once a day upon warm milk with wheat bread crumbs, a quart sufficing now for the whole lot, and once upon fresh meat, care being taken not to overfeed. Any kind of meat and offal that is not too fat will answer. They are very fond of beef liver, chickens' heads and entrails, woodchucks (being careful not to give them the gall or the liver, which are poisonous), rats, mice, etc. They are more easily cared for than one hog, and much more cheaply kept.

Nothing was paid out for meat for them, until after 1st of July, when a contract was made with a butcher to leave a bullock's head once a week. I am confident that the increase of the minkery would have been fully one-third more if both the males had been perfect. I intend to keep them in pairs hereafter. They are not easily handled, but struggle when caught against their will, and exude the thick foetid substance from glands near the vent. They will bite severely, but can be handled safely with thick buckskin gloves.

Mink—To Trap.

For mink the trap should be set near some stream. If their holes cannot be found make one. Set the trap in the cavity, three sides of which should be barricaded with stones, bark or any equivalent substance. Place the bait at the farther extremity of the cavity, beyond the trap. Bait with any kind of fresh meat; muskrat meat is good, but fish, either fresh or stale is better. Bait should be smoked in cold weather, to give it a stronger smell. The best scent for attracting mink is prepared from the decomposition of minnows, eels or trout. Cut the fish into small pieces; put into a bottle, cork closely, and let it hang in the sunshine two or three weeks in the summer. A few drops of this on the bait, or on a stick near the trap, will draw the mink a long distance.

Mirrors—To Clean.

Take a piece of soft sponge, well washed, and cleaned from everything gritty, dip it into water and squeeze it almost dry, dip it into some spirit of wine, and then rub it over the glass. Next, dust the glass over with some powder blue or whiting sifted through muslin; wipe the powder lightly and quickly off again with a cloth; then take a clean cloth, and rub the glass well once more, and finish

by rubbing it with a silk handkerchief. If the glass be very large, clean one-half at a time, as otherwise the spirit of wine will dry before it can be rubbed off. If the frames are not varnished, the greatest care must be taken not to touch them with the sponge, as this will discolour or take off the gilding. To clean the frames, take a little cotton wool, and rub the frames with it; this will take off all the dust and dirt without injuring the gilding. If the frames are well varnished, rub them with spirit of wine, which will take out all spots, and give them a fine polish. Varnished doors may be done in the same manner. Never use any cloth to frames or drawings, or oil paintings, when cleaning and dusting them.

Mixing Ink and Paint for Various Tints.

Mixing black and red gives brown.

Mixing brown and white gives chestnut.

Mixing white, yellow and Venetian red gives buff.

Mixing yellow and white gives straw color.

Mixing black, blue and white gives pearl grey.

Mixing lamp black and white gives lead color.

Mixing lamp black, white and indigo gives silver grey.

Mixing green and white gives pea green.

Mixing light green and black gives dark green.

Mixing red, blue and black gives olive.

Mixing yellow and red gives orange.

Mixing carmine and white gives pink.

Mixing emerald green and white gives brilliant green.

Mixing blue, white and lake gives purple.

Mixing venetian red and black gives chocolate.

Mixing lake, white and vermilion gives flesh color.

Mixing blue and lead color gives pearl.

Mixing white and lake gives rose color.

Mocking Birds—Food for.

Mix thoroughly together corn meal, pea meal, each one part; moss meal, half a part; add to the mixture enough melted lard not to make it too fat or greasy, and sweeten with molasses. Now fry this mixture in a frying-pan for about half an hour, stirring it all the time, and being very careful not to let it burn. If not fried sufficiently it will not keep. When properly made it will keep in a covered glass jar for several weeks. Mocking, and other birds of similar nature, will leave all other food for this, which is rather healthful than injurious to them. Pea meal is made by drying split peas in an oven, and then finely grinding them in a mill. Moss meal is prepared from the moss seed imported into this country from Germany.

Modeling in Clay.

As an interesting, intellectual occupation for leisure hours, modeling in clay has recently been looked upon, especially by ladies, with growing favor. The occupation is really a cleanly one, though at first it might not be thought so. The clay employed is fine white clay—the clay of which pipes are made—and is readily removed by washing. And though no sensible amateur would willingly set up his modeling apparatus in a parlor if he could obtain the use of a room less expensively furnished, yet even here the work may be carried on by an ordinarily careful person without endangering carpet or furniture.

Of the noble art of sculpture, modeling is by far the most important part—is the only part, in fact, which exclusively employs the genius of the

sculptor himself; for the subsequent processes of casting and carving in marble are carried out in great part, if not entirely, by workmen and assistants. The tools employed are chiefly those with which nature has furnished us—the fingers and thumbs; and, as clay can be purchased for a mere trifle, the material required in modeling will cost the amateur little.

In carving we cut down our material to the desired form; in modeling we build up our clay to the required form. The process consists of laying on the clay and smoothing down until gradually the model assumes the full proportions of the object we desire to reproduce. Suppose, then, we have to copy a vase in low relief, from a plaster cast. We place the cast before us; and having provided a slate slab, we draw upon the slab the outline of the cast with a slate pencil. Preserving this drawing as the outline, we commence to lay on the clay, modeling it as we proceed with the fingers. This process is continued until the model projects from the slab precisely as the vase does in the casts; and is, in fact, a fac-simile of it. If the vase have no ornamentation upon it—and the simplest possible copy should be selected for a first attempt in modeling—this work may all be done with the fingers. When there is ornamentation, the clay must be laid on cautiously and worked into form by means of the tools which are usually made of boxwood, with points resembling the extremities of the fingers in shape. When the student has had some little practice in manipulating the clay and reproducing simple forms, he should attempt to copy a simple mask—like that of Dante—in which the surfaces are broad, the features large and sharply defined, so that the whole of the work may be done with the thumbs and fingers. These masks or face, may be obtained at a trifling cost from any figure moulder.

Modeling Flowers in Wax.

There is no art more easily acquired or more encouraging in its immediate results, than that of modeling flowers and fruit in wax. The art, however, is attended by this drawback—that the materials required are somewhat expensive.

Materials required may be obtained at most fancy repositories in large towns. Persons wishing to commence the art would do well to inquire for particulars, and see specimens of materials; because in this, as in every other pursuit, there are novelties and improvements being introduced, which no book can give an idea of.

Petals and Leaves are made of sheets of colored wax, which may be purchased in packets of assorted colors. They are frequently made of thin sheets of wax pressed upon leaves of embossed calico. Leaves of various descriptions are to be obtained of the persons who sell the materials.

The Stems are made of wire of suitable thicknesses, covered with silk, and overlaid with wax.

Copies for Models.—Ladies will often find among their discarded artificial flowers, leaves and buds that will serve as the base of their wax model, but natural flowers are the best guides to the construction of a flower, and far better than printed diagrams or patterns. Take a flower, say a tulip, a rose, or camellia. If possible, procure two flowers, nearly alike, and carefully pick one of them to pieces; lay the petals down in the order in which they are taken from the flower, and then cut paper patterns from them, and number them from the centre of the flower, that you may know their relative positions.

The perfect flower will guide you in getting the wax petals together, and will enable you to give, not only to each petal but to the contour of the

flower, the characteristics which are natural to them. In most cases they are merely pressed together and held in their places by the adhesiveness of the wax. They should be cut singly, and the scissors, should be frequently dipped in water, to prevent the wax adhering to the blades.

The scraps of wax that fall from the cutting will be found useful for making seed vessels, and other parts of the flowers.

Leaves of Flowers.—Where the manufactured foundations cannot be obtained, patterns of them should be cut in paper; the venous appearance may be imparted to the wax by pressing the leaf upon it.

Sprigs of Plants.—In the construction of these, it is most important to be guided by sprigs of the natural plant, as various kinds of plants have, many different characteristics in the grouping of their flowers, leaves and branches.

Selection of Wax.—When about to copy a flower, take care in the selection of good sheets of wax, and see that their colors are precisely those of the flower you desire to imitate. For the tints, stripes, and spots of variegated flowers, you will be supplied with colors among the other materials, and the application of them is precisely upon the principle of water-color painting.

Modeling Fruit, &c., in Wax.

For the imitating of fruit in wax, very different rules are to be observed. The following directions may, however, be generally followed:—The material of which moulds for waxen fruit should be composed is the best plaster of Paris, such as is used for plaster casts, etc. If the plaster is faulty, the results of the modeling will, of course, be more or less faulty also.

The use of an elastic fruit in early experiments often leads to a want of accuracy in the first steps of the operation, which causes very annoying diffi-

culties afterwards; and therefore a solid, inelastic body—an egg boiled hard—is recommended as the first object to be imitated.

Casting Egg in Wax.—For the first experiments common yellow wax may be used as the material, or the ends of half-burnt wax candles. The materials of the hard (not tallow) composition mould candles will also answer. (See page ante.)

Moldy Substances in Rooms.

It has long been known that the presence of mold in rooms is highly injurious to human health; under certain conditions of dampness and bad ventilation, it is no uncommon thing to see mildew run all over a large expanse of white-washed wall or ceiling. If this mold occur in a living room, and it be not destroyed, it frequently brings on a complication of painful symptoms in the human patient, or, in other words the membranes and tissues of the body are known to offer a fitting habitat for the plant, and it is transferred from the original objects to the human frame. A weak solution of hypochloride of lime (bleaching powder) has been recommended as a destroyer of mold in rooms, and as the growth is both common and rapid in damp and ill-ventilated situations, the remedy is worth a trial.

Mold in Books and Ink—To Prevent.

A few drops of lavender will save a library from mold; a single drop will save a pint of ink. A little salt or white wine will also preserve ink from mold.

Mold in Safes—To Prevent.

By the placing of a small lump of camphor in the safe, the accumulation of mold upon money, papers, books etc., will be prevented.

Moles (Ground)—To Destroy.

Several mole traps are on the market that work well, provided the moles

can be induced to go where they will be caught. In addition to the traps, set, men to watching the moles during light showers in summer, at which time they are more active, and when one is found moving the soil he is to be dug out and killed. More moles have been caught in this way than with all the traps used. Poisons of various kinds have been recommended, but on trial they have proved worthless.

Monochromatic Drawing.

The board, or material suitable for this drawing, can be purchased at any art store, either in tinted or plain colors. You need for this painting a knife or eraser, crayons, fine sponge, pencils, cork, rubber, piece of kid, and crayon holders. Fold several pieces of kid and soft leather, and use in shading the sharp-folded corners; also, double some pieces over the ends of pointed and rounded sticks; the learner will find use for several kinds. Always commence painting with the dark shades, and blend gradually into the light. For very dark shades, rub the crayon directly upon the surface with a light hand, and blend off carefully.

Paint the sky first, as in water colors. It is well to shade distant mountains very light first, and be sure to have the edges soft and faint.

For water, scrape some black crayon into powder, and lay it on your board with the kid, working it horizontally, and making the light and shades stronger as it comes nearer. Your sponge may do good in rendering the water transparent. Make sharp lights with the pen knife. Ruins overgrown with moss, and dilapidated buildings, make pretty pictures. We have seen moonlight views, in this style of painting, more beautiful than anything else.

Great care should be taken to do the foliage well. Many a picture, which would otherwise have been good,

has been spoiled by a stiff, ugly tree. By the delicate use of the round point of a pen knife, beautiful effects can be produced in crayon shading. Figures, animals, etc., are put in last, and a person knowing how to shade in pencil will find no difficulty in this.

Mortar.

Much of the mortar used in building is said to be imperfectly made. Four parts coarse and three parts fine sand, with one part of quick lime, well mixed with but little water, makes mortar which soon becomes as hard as adamant; resisting all atmospheric action and proving as durable as the material it unites; and with the addition of a portion of manganese, it will harden under water.

Mortar—Hydraulic.

An easy way of making hydraulic mortar out of ordinary lime consists in adding to burned lime as much water as it will take up without becoming pasty, and allowing it to stand in heaps for 8 days, and swell up. It is then passed through a wire sieve with meshes about the fifteenth of an inch in diameter, for the purpose of separating the hard particles. The residuum of preceding siftings, that have been exposed to water or moist air, are to be rubbed up and added to the mass, the whole to be well mixed together and then piled up in heaps, protected from rain till needed. It may be preserved thus for years, ready for use at any moment.

Mosquitoes—To Keep Out of a Room.

Oil of pennyroyal, scattered about in small quantities.

Take of gum camphor a piece about one third the size of an egg, and evaporate it by placing it in a tin vessel, and holding it over a lamp or candle, taking care that it does not ignite. The smoke will soon fill the room and expel the mosquitoes.

Jagor, a celebrated German traveller, who spent a number of years in the jungles of the Malayán Archipelago, recommended the roots of pyrethrum roseum. In a paper recently published by Dr. Birdwood, on olibanum, the author says that in Bombay nothing so quickly clears one's room of mosquitoes as the burning of a little olibanum or myrrh in it.

Carbonic acid has recently been successfully used for the extermination of mosquitoes and flies. A small piece of cloth, saturated with the acid, was hung in the room, and in two hours the flies had entirely disappeared. In the evening the acid was tried in the kitchen, where the mosquitoes were very troublesome, with like success.

Mosquitoes—To Prevent Biting.

Dilute a little of the oil of thyme with sweet oil, and dip pieces of paper in it. Hang it in your room or rub a little on the hands or face when going to bed.

It is said that petroleum is a good mosquito-bar if used in this way. A little coal oil is dropped on some raw cotton, the excess of it squeezed out, and the cotton then rubbed over face and hands. It is said the little pests will not come near it. To us the remedy seems nearly as bad as the disease; to those who do not mind the smell of kerosene it may be useful.

Mosquito Bites—Solution for.

Apply at once a few drops of aqua ammonia, or an infusion of tobacco, either of which will allay the itching almost instantaneously. Carbolic acid has also been tried, and with good success, but it should be very much diluted, to prevent producing a blister.

Moss Work.

Collecting and arranging, in various forms of grace and beauty, the delicate and many-colored mosses with which our fields and forests abound, has long been a favorite pastime with all lovers of the beautiful in nature. A fertile

imagination and inventive mind will readily perceive the many objects for which moss work is well adapted. Vases, neatly and tastefully covered with delicate mosses, arranged with an eye to the harmony of colors, are very appropriate for holding dried grasses; crosses, little towers, "ancient and moss-grown," for watch stands; frames for holding collections of leaves, grasses or flowers; indeed, it is needless to particularize. Beautiful landscapes can be made, closely resembling nature.

Collect all the varieties of wood moss, beautiful bits of bark and dried leaves within your reach. Make a design—perhaps a landscape—in which are ruins, rocks, etc. Paint a sky, as in water colors; then glue thin bits of bark and moss on the ruins; moss on rocks; dried forest leaves on the distant mountains, and the bright-colored and green mosses of various hues on the foreground. Such a landscape is calculated to draw out the ingenuity of the pupil, and requires no little study, and when well done, is a very pleasant picture. Set in a deep frame.

Moths—Different Methods to Preserve Clothing and Furs from

Procure shavings of cedar-wood, and enclose in muslin bags, which should be distributed freely among the clothes.

Procure shavings of camphor-wood, and enclose in bags.

Sprinkle pimento (allspice) berries among the clothes.

Sprinkle the clothes with the seeds of the musk plant.

An ounce of gum camphor and one of the powdered shell of red pepper are macerated in 8 ounces of strong alcohol for several days, then strained. With this tincture the furs or cloths are sprinkled over, and rolled up in sheets.

Carefully shake and brush woollens early in the spring, so as to be certain

that no eggs are in them; then sew them up in cotton or linen wrappers, putting a piece of camphor gum, tied up in a bit of muslin, into each bundle, or into the chests and closets where the articles are to lie. No moth will approach while the smell of the camphor continues. When the gum is evaporated, it must be renewed. Enclose them in a moth-proof box with camphor, no matter whether made of white paper or white pine, before any eggs are laid on them by early spring moths. The notion of having a trunk made of some particular kind of wood for this purpose, is nonsense. Furs or woollens, put away in the spring time, before moth eggs are laid, into boxes, trunks, drawers, or closets even; where moths cannot enter, will be safe from the ravages of mothworms, provided none were in them that were laid late in the autumn, for they are not of spontaneous production.

Moths in Carpets—To Kill.

Wring a coarse crash towel out in clear water, spread it smoothly on the carpet, iron it dry with a good hot iron, repeating the operation on all parts of the carpet suspected of being infested with moths. No need to press hard, and neither the pile nor color of the carpet will be injured, and the moths will be destroyed by the heat and steam.

Moth Patches—To Remove.

Wash the patches with solution of common bicarbonate of soda and water several times during the day for two days, or until the patches are removed, which will usually be in forty-eight hours. After the process wash with some nice toilet soap, and the skin will be left nice, smooth and clear of patches.

Mourning Dresses—To Remove Stains from.

Boil a handful of fig leaves in two quarts of water until reduced to a pint. Bombazines, crape, cloth, etc.,

need only be rubbed with a sponge dipped in this liquor, and the stains will be instantly removed.

Mouth—Hygiene of.

The teeth, the great ornament of the mouth, play an important part in maintaining the health. It is of the highest necessity to attend to and preserve one's teeth as long as possible.

This end is easily attained by using a really good tooth-powder or paste, and gargling with a disinfectant, always after cleaning the teeth.

Some tooth powders contain acids, cream of tartar, alum, pumice stone, etc., intended to whiten the teeth, but, unfortunately, to the detriment of the enamel, and consequently their employment should be avoided.

It is important to observe that a good tooth powder should not be acid but neutral or slightly alkaline. It must be pleasant to the taste and possess antiseptic properties to neutralize the ferments that form in the buccal cavity.

Mucilage.

Put 3 oz. of gum arabic in an earthenware vessel containing $\frac{1}{2}$ a pint of cold water. If the liquid is occasionally stirred, the gum in 24 hours will be dissolved and the mixture ready for use. Cloves will keep it from molding.

Fine clean glue, 1 lb.; gum arabic 10 oz.; water, 1 quart; melt by heat in a glue kettle or water-bath; when entirely melted, add slowly 10 oz. strong nitric acid, and set off to cool. Then bottle, adding a couple of cloves to each bottle.

Mucilage, Salep.

For a 6 oz. mixture, place in a flask 1 oz. of cold water, and 30 grs. of powdered salep; shake well together; then add 7 oz. of boiling water, with which the whole is shaken until nearly cold.

Mucilage, Damp-Proof for Labels.

Macerate five parts of good glue in eighteen to twenty parts of water for a day, and to the liquid add nine parts of rock candy and three parts of gum arabic. The mixture can be brushed upon paper while lukewarm; it keeps well, does not stick together, and when moistened, adheres firmly to bottles. For the labels of soda or seltzer water bottles, it is well to prepare a paste of good rye flour and glue, to which linseed oil, varnish and turpentine have been added, in the proportion of half an ounce to the pound. Labels prepared in the latter way do not fall off in damp cellars.

Mucilage—Mold in.

Solutions of gum arabic are very liable to become moldy; and while the introduction of creosote, corrosive sublimate, etc., frequently used to remedy this evil, is objectionable on account of the danger of poisoning, according to the "*Industrie Blätter*" sulphate of quinine is a complete protection against mold, a very small quantity of it being sufficient to prevent gum mucilage from spoiling. It is quite possible that writing ink might be protected by the same application from a like difficulty. The use of ammonia for the same purpose is also recommended.

Mushroom Beds—Artificial.

Mushrooms may be grown in pots, boxes, or hampers. Each box may be three feet long, one and a half broad, and seven inches in depth. Let each box be half filled with manure from the stables, the fresher the better, and if wet, to be dried for three or four days before it is put into the boxes; the manure is to be well beaten down in the box. After the second or third day, if any heat has arisen amongst the manure, break each spawn brick into three parts as equally as possible, then lay the pieces about four inches apart

upon the surface of the manure in the box; here they are to lie for six days, when it will probably be found that the side of the spawn next to the manure has begun to run in the manure below; then add one and a half inch more of fresh manure on the top of the spawn in the box, and beat it down as formerly. In the course of a fortnight when you find that the spawn has run through the manure, the box will be ready to receive the mould on the top; this mould must be two and a half inches deep, well beaten down, and the surface made quite even. In the space of five or six weeks the mushrooms will begin to come up. If then the mould seems dry, give a gentle watering with lukewarm water. The box will continue to produce from six weeks to two months, if duly attended to by giving a little water when dry, for they need neither light nor free air. If cut as button mushrooms, each box will yield from twenty-four to forty-eight pints, according to the season and other circumstances. They may be kept in dry, dark cellars, or any other places where the frost will not reach them; and by preparing, a succession of boxes, mushrooms may be had all the year through.

Without Manure.—They may be grown without manure, and be of a finer flavor. Take a little straw, and lay it carefully in the bottom of the mushroom-box, about an inch thick, or rather more. Then take some of the spawn bricks and break them down—each brick into about ten pieces, and lay the fragments on the straw, as close to each other as they will lie. Cover them up with mould three and a half inches deep, and well pressed down. When the surface appears dry give a little tepid water, as directed for the last way of raising them; but this method needs about double the quantity of water that the former does, owing to having no moisture in the

bottom, while the other has the manure. The mushrooms will begin to start in a month or five weeks—sometimes sooner, sometimes later, according to the heat of the place where the boxes are situated. The spawn bricks may be obtained from seedsmen, or be collected from meadows.

Musical Instruments—To Stain.

Crimson.—Boil 1 lb. of ground Brazil-wood in 3 quarts of water for an hour; strain it, and add half an ounce of cochineal; boil it again for half an hour gently, and it will be fit for use.

Purple.—Boil a pound of chip log-wood in 3 quarts of water for an hour then add four ounces of alum.

Muskrat—To Trap.

Find a log with some recent droppings of the muskrat on it; a notch is cut in the log for the trap, an inch or two under the water. The trap is fastened to a tally-stick. These tally-sticks are green saplings with a fork at the upper end, and a hook near the bottom to hold it in the loose ground. The chain-ring is slipped on to this tally stick, and care is taken to so place the tally-stick and trap that when caught, the muskrat shall take to the water and be drowned. If on the land, among weeds and bushes, he will not unfrequently twist off his leg and escape. The traps are also placed in the runs, on bogs and old muskrat houses, and wherever there are indications that the muskrats come to feed. Where the game is scarce, the traps are sometimes baited, but otherwise this is not necessary. Carrots, parsnips, apples, potatoes, or a piece of flesh of muskrat can be used for bait. A stick is stuck in the ground, slanting in such a manner that the end shall be 6 or 8 inches above the treadle of the trap. The bait is stuck on the end of the stick, and in this way, if there are any rats in the vicinity, you are pretty sure to catch them. Sometimes the

traps are covered with an inch or two of weed; and some trappers put a drop or two of oil, found in the glands of the muskrat, on or near the traps. The next morning the hunter takes his boat and visits his traps

Muskrats—Home-made Trap for.

A trap equal if not better than a steel trap is an old barrel. Sink it near the bank of the ditch, where there are evidences of the presence of the animals, to the level of the ground, and half fill it with water. Put in a couple of shingles, or light strips of board, to float on the water. Place sweet apples or carrots cut in small bits in the runs of the muskrats, and toll them to the barrel. Put several pieces upon the floats, inside. The rats will jump in after their food, and will not be able to get out. Where they are plenty, several muskrats may be taken in a night by this simple trap. It costs nothing but labor, can be visited at one's convenience, and there is plenty of room in it for a dozen or more at once.

Muskrats—To Catch Without Traps.

It is a mystery to many how muskrats, beavers, and other animals, are able to stay so long under water, apparently without breathing, especially in winter. The way they manage is, they take in a good breath at starting, and then remain under water as long as possible. Then they rise up to the ice and breathe out the air in their lungs, which remains in a bubble against the lower part of the ice. The water near the ice is highly charged with oxygen, which it readily imparts to the air breathed out. After a time this air is taken back in the lungs, and the animal again goes under the water, repeating this process from time to time. In this way, they can travel almost any distance, and live almost any length of time under the ice. The hunter takes advantage of this habit

of the muskrat in the following manner. When the marshes and ponds where the muskrats abound are first frozen over, and the ice is thin and clear, on striking into their houses with his hatchet, for the purpose of setting his trap, he frequently sees a whole family plunge into the water and swim away under the ice. Following one for some distance, he sees him come up to recover his breath, in the manner above described. After the animal has breathed against the ice, and before he has time to take his bubble in again, the hunter strikes with his hatchet directly over him, and drives him away from his breath. In this case he drowns, and the hunter, cutting a hole in the ice, takes him out.

Muskrats—To Skin.

The muskrat is usually skinned by beginning at the head, ripping from the chin to between the fore legs, and then stripping the skin off over the body. When taken off in this manner

the skin is stretched on a bent rod of tough, pliable wood. When skinned from the tail it is stretched on a board.

Muskrat Skins—To Tan with the Fur on.

First, for soaking, to 10 gallons of cold soft water add 8 parts of wheat bran, $\frac{1}{2}$ pint of old soap, 1 ounce of borax; by adding 2 ounces of sulphuric acid the soaking may be done in one-half the time. If the hides have not been salted, add a pint of salt. Green hides should not be soaked more than 8 or 10 hours. Dry ones should soak till very soft.

For tan liquor, to 10 gallons warm water add $\frac{1}{2}$ bushel of bran; stir well and let stand in a warm room till it ferments. Then add slowly $2\frac{1}{2}$ pounds sulphuric acid; stir all the while. Muskrat hides should remain in about 4 hours; then take out and rub with a fleshing knife—an old chopping knife with the edge taken off will do. Then work it over a beam until entirely dry.

N

Nails—The Finger.

Josh Billings said, "Yu kant alwus tell a gentleman by hiz clothes, but yu kan by his finger nails."

Names—Choice of.

To choose names for children, parents should consult the following list.

NAMES, Significance of.—

Aaron, *Hebrew*, a mountain.
Abel, *Hebrew*, vanity.
Arbaham, *Hebrew*, the father of many.
Adam, *Hebrew*, red earth.
Adolphus, *Saxon*, happiness and help.
Albert, *Saxon*, all bright.
Alexander, *Greek*, a helper of men.
Alfred, *Saxon*, all peace.
Ambrose, *Greek*, immortal.
Amos, *Hebrew*, a burden.
Andrew, *Greek*, courageous.
Anthony, *Latin*, flourishing.
Archibald, *German*, a bold observer.
Arnold, *German*, a maintainer of honor.
Arthur, *British*, a strong man.

Augustus, } *Latin*, venerable, grand.
Augustin, }
Baldwin, *German*, a bold winner.
Bardolph, *German*, a famous helper.
Barnaby, *Hebrew*, a prophet's son.
Bartholomew, *Hebrew*, the son of him who made the waters to rise.
Beaumont, *French*, a pretty mound.
Bede, *Saxon*, prayer.
Benjamin, *Hebrew*, the son of the [my] right hand.
Bennet, *Latin*, blessed.
Bernard, *German*, bear's heart.
Bertram, *German*, fair, illustrious.
Boniface, *Latin*, a well-doer.
Brian, *French*, having a thundering voice.
Cadwallader, *British*, valiant in war.
Cæsar, *Latin*, adorned with hair.
Caleb, *Hebrew*, a dog.
Cecil, *Latin*, dim-sighted.
Charles, *German*, noble-spirited.
Christopher, *Greek*, bearing Christ.

- Clement, *Latin*, mild-tempered.
 Conrad, *German*, able counsel.
 Constantine, *Latin*, resolution.
 Crispin, *Latin*, having curled locks.
 Cuthbert, *Saxon*, known famously.
 Daniel, *Hebrew*, God is judge.
 David, *Hebrew*, well-beloved.
 Denis, *Greek*, belonging to the god of wine.
 Dunstan, *Saxon*, most high.
 Edgar, *Saxon*, happy honor.
 Edmund, *Saxon*, happy peace.
 Edward, *Saxon*, happy keeper.
 Edwin, *Saxon*, happy conqueror.
 Egbert, *Saxon*, ever bright.
 Elijah, *Hebrew*, God, the Lord.
 Elisha, *Hebrew*, the salvation of God.
 Ephraim, *Hebrew*, fruitful.
 Erasmus, *Greek*, lovely, worthy to be loved.
 Ernest, *Greek*, earnest, serious.
 Evan or Ivon, *British*, the same as John.
 Everard, *German*, well reported.
 Eugene, *Greek*, nobly descended.
 Eustace, *Greek*, standing firm.
 Ezekiel, *Hebrew*, the strength of God.
 Felix, *Latin*, happy.
 Ferdinand, *German*, pure peace.
 Francis, *German*, free.
 Frederic, *German*, rich peace.
 Gabriel, *Hebrew*, the strength of God.
 Geoffery, *German*, joyful.
 George, *Greek*, a husbandman.
 Gerard, *Saxon*, all towardliness.
 Gideon, *Hebrew*, a breaker.
 Gilbert, *Saxon*, bright as gold.
 Giles, *Greek*, a little goat.
 Godard, *German*, a godly disposition.
 Godfrey, *German*, God's peace.
 Godwin, *German*, victorious in God.
 Griffith, *British*, having great faith.
 Guy, *French*, the mistletoe shrub.
 Hannibal, *Punie*, a gracious lord.
 Harold, *Saxon*, a champion.
 Hector, *Greek*, a stout defender.
 Henry, *German*, a rich lord.
 Herbert, *German*, a bright lord.
 Hercules, *Greek*, the glory of Hera or Juno.
 Hezekiah, *Hebrew*, cleaving to the Lord.
 Horatio, *Italian*, worthy to be beheld.
 Hubert, *German*, a bright color.
 Hugh, *Dutch*, high, lofty.
 Humphrey, *German*, domestic peace.
 Ingram, *German*, of angelic purity.
 Jacob, *Hebrew*, a supplanter.
 James or Jacques, beguiling.
 Joab, *Hebrew*, fatherhood.
 Job, *Hebrew*, sorrowing.
 Joel, *Hebrew*, acquiescing.
 John, *Hebrew*, the grace of the Lord.
 Jonah, *Hebrew*, a dove.
 Jonathan, *Hebrew*, the gift of the Lord.
 Joseph, *Hebrew*, addition.
 Josias, *Hebrew*, the fire of the Lord.
 Joshua, *Hebrew*, a Saviour.
 Isaac, *Hebrew*, laughter.
 Lambert, *Saxon*, a fair lamb.
 Lancelot, [Launce,] *Spanish*, a little lance.
 Laurence, *Latin*, crowned with laurels.
 Lazarus, *Hebrew*, destitute of help.
 Leonard, *German*, like a lion.
 Leopold, *German*, defending the people.
 Llewellyn, *British*, like a lion.
 Lewis, *French*, defender of the people.
 Lionel, *Latin*, a little lion.
 Lucius, *Latin*, shining.
 Luke, *Greek*, a wood or grove.
 Mark, *Latin*, a hammer.
 Martin, *Latin*, martial.
 Matthew, *Hebrew*, a gift or present.
 Maurice, *Latin*, sprung of a Moor.
 Meredith, *British*, the roaring of the sea.
 Michael, *Hebrew*, who is like God?
 Morgan, *British*, a mariner.
 Moses, *Hebrew*, drawn out.
 Nathaniel, *Hebrew*, the gift of God.
 Nicolas, *Greek*, victorious over the people.
 Norman, *French*, one born in Normandy.
 Obadiah, *Hebrew*, the servant of the Lord.
 Oliver, *Latin*, an olive.
 Orlando, *Italian*, counsel for the land.
 Osmund, *Saxon*, house peace.
 Oswald, *Saxon*, ruler of a house.
 Owen, *British*, well descended.
 Patrick, *Latin*, a nobleman.

Paul, *Latin*, small, little.
 Percival, *French*, a place in France.
 Peregrine, *Latin*, outlandish.
 Peter, *Greek*, a rock or stone.
 Philip *Greek*, a lover of horses.
 Phineas, *Hebrew*, of bold countenance.
 Ralph, contracted from Radolph, or
 Rudolf, red ensign.
 Raymond, *German*, quiet peace.
 Randal, or Ranulph, *Saxon*, pure
 help.
 Reuben, *Hebrew*, the son of vision.
 Reynold, *German*, a lover of purity.
 Richard, *Saxon*, powerful.
 Robert, *German*, famous in counsel.
 Roger, *German*, strong counsel.
 Rowland, *German*, counsel for the land.
 Rufus, *Latin*, reddish.
 Solomon, *Hebrew*, peaceable.
 Samson, *Hebrew*, a little son.
 Samuel, *Hebrew*, heard by God.
 Saul, *Hebrew*, desired.
 Sebastian, *Greek*, to be revered.
 Simeon, *Hebrew*, hearing.
 Simon, *Hebrew*, obedient.
 Stephen, *Greek*, a crown or garland.
 Theobald, *Saxon*, bold over the people.
 Theodore, *Greek*, the gift of God.
 Theodosius, *Greek*, given of God.
 Theophilus, *Greek*, a lover of God.
 Thomas, *Hebrew*, a twin.
 Timothy, *Greek*, a fearer of God.
 Toby or Tobias, *Hebrew*, the goodness
 of the Lord.
 Valentine, *Latin*, powerful.
 Vincent, *Latin*, conquering.
 Vivian, *Latin*, living.
 Walter, *German*, a wood master.
 William, *German*, defending many.
 Zaccheus, *Syriac*, innocent.
 Zachary, *Hebrew*, remembering the
 Lord.
 Zebedee, *Syriac*, having an inheritance.
 Zedekiah, *Hebrew*, the justice of the
 Lord.

Adeline, *German*, a princess.
 Agatha, *Greek*, good.
 Agnes, *German*, chaste.
 Althea, *Greek*, the truth.

Althea, *Greek*, hunting.
 Alice, Alicia, *German*, noble.
 Amy, Amelia, *French*, a beloved.
 Anna, Anne, or Hannah, *Hebrew*,
 gracious.
 Arabella, *Latin*, a fair altar.
 Aureola, *Latin*, like gold.
 Barbara, *Latin*, foreign or strange.
 Beatrice, *Latin*, making happy.
 Benedicta, *Latin*, blessed.
 Berenice, *Greek*, bringing victory.
 Bertha, *Greek*, bright or famous
 Blanche, *French*, fair.
 Bridget, *Irish*, shining, bright.
 Cassandra, *Greek*, a reformer of men.
 Catherine, *Greek*, pure and clean.
 Charity, *Greek*, love, bounty.
 Charlotte, *French*, all noble.
 Caroline, *feminine of Carolus*, the *Latin*
of Charles, noble-spirited.
 Chloe, *Greek*, a green herb.
 Christina, *Greek*, belonging to Christ.
 Cecilia, *Latin*, from Cecil.
 Cicely, a corruption of Cecilia.
 Clara, *Latin*, clear or bright.
 Constance, *Latin*, constant.
 Deborah, *Hebrew*, a bee.
 Diana, *Greek*, Jupiter's daughter.
 Dorcas, *Greek*, a wild roe.
 Dorothy, *Greek*, the gift of God.
 Edith, *Saxon*, happiness.
 Eleanor, *Saxon*, all fruitful.
 Eliza, Elizabeth, *Hebrew*, the oath of
 God.
 Emily, corrupted from Amelia.
 Emma, *German*, a nurse.
 Esther, Hester, *Hebrew*, secret.
 Eve, *Hebrew*, causing life.
 Eunice, *Greek*, fair victory.
 Frances, *German*, free.
 Gertrude, *German*, all truth.
 Grace, *Latin*, favor.
 Hagar, *Hebrew*, a stranger.
 Helena, *Greek*, alluring.
 Jane, *softened from Joan*; or,
 Janne, *the feminine of John*.
 Janet, Jeannette, little Jane.
 Joyce, *French*, pleasant.
 Isabella, *Spanish*, fair Eliza.

Judith, *Hebrew*, praising.
 Julia, Juliana, *feminine of Julius*.
 Letitia, *Latin*, joy or gladness.
 Lois, *Greek*, better.
 Lucretia, *Latin*, a chaste Roman lady.
 Lucy, *Latin*, *feminine of Lucius*.
 Lydia, *Greek*, descended from Lud.
 Mabel, *Latin*, lovely.
 Magdalene, *Syriac*, magnificent.
 Margaret, *German*, a pearl.
 Martha, *Hebrew*, bitterness.
 Mary, *Hebrew*, bitter.
 Maud, Matilda, *Greek*, a lady of honor.
 Mercy, *English*, compassion.
 Mildred, *Saxon*, speaking mild.
 Nicola, *Greek*, *feminine of Nicholas*.
 Olympia, *Greek*, heavenly.
 Orabilis, *Latin*, to be entreated.
 Patience, *Latin*, bearing patiently.
 Paulina, *Latin*, *feminine of Paulinus*.
 Penelope, *Greek*, a turkey.
 Persis, *Greek*, destroying.
 Philadelphia, *Greek*, brotherly love.
 Philippa, *Greek*, *feminine of Philip*.
 Phœbe, *Greek*, the light of life.
 Phyllis, *Greek*, a green bough.
 Priscilla, *Latin*, somewhat old.
 Prudence, *Latin*, discretion.
 Psyche, *Greek*, the soul.
 Rachel, *Hebrew*, a lamb.
 Rebecca, *Hebrew*, fat or plump.
 Rhoda, *Greek*, a rose.
 Rosamund, *Saxon*, a rose of peace.
 Rosa, *Latin*, a rose.
 Rosabella, *Italian*, a fair rose.
 Ruth, *Hebrew*, trembling.
 Sabina, *Latin*, sprung from the Sabine.
 Salome, *Hebrew*, perfect.
 Sapphira, *Greek*, like a sapphire stone.
 Sarah, *Hebrew*, a princess.
 Sibylla, *Greek*, the counsel of God.
 Sophia, *Greek*, wisdom.
 Sophronia, *Greek*, of a sound mind.
 Susan, Susanna, *Hebrew*, a lily.
 Tabitha, *Syriac*, a roe.
 Temperance, *Latin*, in moderation.
 Theodosia, *Greek*, given by God.
 Tryphosa, *Greek*, delicious.
 Tryphena, *Greek*, delicate.
 Ursula, *Latin*, a female bear.

Winifred, *Saxon*, winning peace.

Zenobia, *Greek*, the life of Jupiter.

Night Clothes.

The perfection of dress, for day or night, where warmth is the purpose, is that which confines around the body sufficient of its own warmth, while it allows escape to the exhalations of the skin. Flannel best fulfills these conditions. Where the body is allowed to bathe protractedly in its own vapors we must expect an unhealthy effect upon the skin. Where there is too little allowance for ventilation, insensible perspiration is checked, and something analogous to fever supervenes; foul tongue, ill taste, and lack of morning appetite betray the evil.

Nitro-Glycerin.

When glycerine is allowed slowly to trickle into a mixture of equal measures of nitric acid and oil of vitriol, at a low temperature, two atoms of its hydrogen are replaced by two atoms of protoxide of nitrogen, and there results a heavy oily liquid known as nitro-glycerin, a body which has more than ten times the explosive power of gunpowder. It has come into extensive use for blasting, and the number of terrible accidents that have happened from it, by explosion from mere friction, illustrates not only the tremendous forces that can be stored up in the shape of atomic tensions, but how exquisite is the balance by which such terrible agencies are kept in equilibrium.

This terrible explosive seems little to respect its company and surroundings. Dr. Gorup Besamez reports the account of an explosion of ten drops of the substance in his laboratory, and the astonishing effects he records as resulting from this explosion are well calculated to give a most respectable and respectful notion of the properties of nitro-glycerin. One of the doctor's pupils, in the course of an investiga-

tion, placed the above mentioned quantity of the substance in question in a small cast iron dish heater over the small Bunsen gas burner in common use in laboratories. Result: forty-six panes of glass in the windows of the laboratory demolished, the iron dish hurled through a brick wall, the iron stand upon which it was supported partly split and partly twisted out of shape, and the tube of the Bunsen burner split and flattened. Those in the laboratory, fortunately, escaped without injury. This circumstance confirms the results of Dr. E. Kopp's observations upon the conditions upon which nitro-glycerin explodes or quietly burns. When caused to fall drop by drop on an iron plate at a full red heat, it burns off like gunpowder; but should the iron plate not be thoroughly red, but still sufficiently heated to make the nitro-glycerin boil suddenly, an explosion invariably occurs. The latter must have been the conditions under which the nitro-glycerin was heated in the case above cited. Nobel claims that nitro-glycerin can be rendered perfectly harmless and safe for transportation by mixing it with ten per cent. of wood spirit or methylic alcohol. When required for use this added substance must be removed, its removal bringing the explosive back to its original dangerous state. An admixture with twenty-five per cent. of its weight of sand will, it is said, allow it to burn quietly without explosion, but if struck with a sudden and violent blow, it takes fire,

but only the portion struck burns. Such a mixture, now known as dynamite, may be exploded by means of fulminate of mercury, itself fired by the electric spark or by a slow match.

Numerals—Roman.

These have been used largely in printing the dates on the title pages of books, especially old books, the headings of chapters and clauses, and on the dials of clocks and watches, etc. The following are the characters, with their relative values: I-1, V-5, X-10, L-50, C-100, D-500, M-1000. MDCCCXCVI-1896. When a character is *followed* by another of less or equal value, the number expressed denotes the *sum* of their single values, but when *preceded* by one of less value it signifies the difference. For instance, III stands for 3, IV for 4, and VI for 6, XL for 40, LXX for 70, and so on. Our forefathers displayed considerable ingenuity and eccentricity in the arrangement of these symbols, so much so that they often prove a vexatious puzzle to our modern bibliographers; but the above simple explanation is sufficient for all purposes in these practical times.

Nursing

Nursing is generally done better by women than by men; but if a man does it well at all, he is almost certainly better than any woman. The five important qualifications are—Temperance, cleanliness, firmness, gentleness and patience.

Oceans—Area of in Square Miles.

Pacific	80,000,000
Atlantic	40,000,000
Indian	20,000,000
Southern	10,000,000
Arctic	5,000,000

Oil-Cloth—How to Clean.

To ruin them—clean them with hot water or soap suds, and leave them half wiped, and they will look very bright while wet, and very dingy and dirty when dry, and soon crack and peel off. But if you wish to preserve them, and have them look new and nice, wash them with soft flannel and luke-warm water and wipe thoroughly dry. If you want them to look extra nice, after they are dry, drop a few spoonfuls of milk over them, and rub them with a small dry cloth.

Oil—Drying.

A good drying linseed oil, prepared without the usual process of boiling: Mix with old linseed oil, the older you can get it the better, 2 per cent. of its weight of manganese borate (this salt is readily prepared by precipitating a solution of sulphate of manganese with a solution of borax, wash the precipitate, and dry it either at the ordinary temperature of the air or at 100°), and heat this mixture on a water-bath, or, if you have to work with large quantities, with a steam-bath to 100°, or at most 110°; you thus obtain a very excellent, light-colored, rapidly-drying oil; by keeping the mixture stirred, that is to say, by always exposing fresh portions to air, the drying property of the oil is greatly promoted. The rapidity of the drying of the oil after it has been mixed with paint, on surfaces besmeared therewith, does not simply depend upon the drying property of the oil, but, in a very great measure, upon the state of the atmosphere—viz., whether dry or moist, hot or cold—the direct action of sunlight,

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and the state of the surfaces on which the paint is brought. Really genuine boiled linseed oil, if well prepared, leaves nothing to be desired as regards rapidity of drying, but it is retarded by various substances which are added in practice, among which, especially, oil of turpentine is injurious.

Oil—Furniture.

Take linseed oil, put it into a glazed pipkin with as much alkanet root as it will cover. Let it boil gently, and it will become of a strong red color; when cool, it will be fit for use.

Oil, Prepared for Carriages, Etc.

To 1 gallon linseed oil add 2 lbs. gum shellac; litharge, $\frac{1}{2}$ lb.; red lead, $\frac{1}{4}$ lb.; umber, 1 oz. Boil slowly as usual until the gums are dissolved; grind your paints in this (any color), and reduce with turpentine.

Oil (Kerosene)—To Test.

The only reliable test is the temperature of the flashing point, that is, the temperature at which the petroleum takes fire when a burning match is applied to its surface. This test can be easily applied. Into a flat dish or saucer, pour the oil to be tried, until it is at least half an inch deep; then hold a burning match or paper near the surface. At the point of contact the combustion is often very lively, as the taper draws up some of the liquid, but if the petroleum be safe and free from naphtha, the flame does not spread over the surface. If the petroleum has been adulterated, as soon as the match touches the surface a blue lambent flame flashes across it, and in a few moments the body of the oil will be on fire. Such an oil is dangerous—liable to explode in lamps and to give off inflammable vapors at all times. Any oil which takes fire when a match is held near its surface, and continues to burn, ought to be condemned at once and thrown into the streets.

Oil (Lamp)—To Purify.

Take chloride of lime, 1 lb.; water, 12 lbs. Triturate the chloride of lime in a large mortar, gradually adding the water so as to form a smooth and soft paste, and then add the remainder of the water, which will give the whole the consistence of cream. Now mix this thoroughly with the oil by frequent and careful stirring, in the proportion of 1 quart of the paste for 100 lbs. of oil, or a little more, if the oil be very putrid. Let it remain a few hours, when add 1 lb. of sulphuric acid, previously diluted with 20 or 30 parts of water, and boil, with a gentle heat, constantly stirring during the process, until the oil drops clear from the end of a piece dipped into it. After the boiling has been finished, allow the oil to settle for a few hours; then draw it off from the acidulated water. The boiler should be lined with lead, and the mortar for the trituration of the chloride of lime should neither be iron nor copper.

Oil—Neat's-Foot.

In the manufacture of this oil the bones of the foot only are used after rejecting the hoofs. In the hind feet of the animals the foot goes up to the first point, which bends inside, presenting a very large bone. These bones, as fresh and as clean as possible, are boiled for half an hour in a suitable vessel, and the oil after cooling is poured or syphoned off. It is then filtered through a piece of flannel and is ready for use. If the bones are not fresh the oil may have a disagreeable odor, and it has then to be purified, which can be done by shaking it with a weak solution of bleaching powder, to which a little hydrochloric acid has been added, washing it with water and filtering. The solid fats are removed, melted again, poured through muslin, and constitute, when odorless, an excellent material for pomatums. If they

are rancid they may be sold to the soap makers.

Oil—Manufacture of Neat's-Foot

The feet of about 100 wethers are placed in a tank and heated by steam for a few hours to 165° or 175° F. when the woolly hair can be removed the tank is emptied, the feet scraped off, and the claws removed. The feet thus cleansed are tied together in bundles of 18 each, and boiled until the oil contained in them is gained, while the half-boiled feet themselves are brought into commerce; 100 to 125 of these bundles are boiled at a time. The yield of fat varies very much, amounting to 1½ to 3½ pints from 100 wethers. The feet of animals, having travelled long distances before being killed, give only traces of oil. After having been boiled the feet are at once thrown into a current of cold water and, when cold, are ready for the market. The oil has a specific weight of 0.915; it is of a transparent gray color, becomes clear by standing or filtration, and is then very pale yellow. More than 75 per cent. of commercial neat's foot oil contain other fats.

**Oils of Orange and Lemon—
To Preserve.**

To every pound of oil 1 oz. of alcohol is to be added, and well mixed; then 1 oz. of water is put with it, which again withdraws the alcohol from the oil, and collects at the bottom of the bottle as dilute alcohol.

Oil-Parchment.

According to Dr. J. C. Hofmann's directions for the preparation of what he calls oil-parchment, the basis may be either linen or cotton-cloth, or even strong paper. The material, whichever is chosen, is to be stretched out, and then covered with the following preparation: One part of fine white lead, two-thirds of a part of well-burnt, ground and sifted plaster of Paris, and one-fourth of a part of fine slaked lime

are intimately mixed and ground with water until a perfectly smooth, doughy mass is obtained. Then two-thirds of a part of best clear glue, dissolved in sufficient water, is gradually added until the mass is of such a consistence that it can be easily spread with a brush. Three or four layers of this are to be put upon the cloth, one being allowed to get thoroughly dry before another is put on. The last, when dry, is to be rubbed down smooth with pumice stone. The ground is now ready for the surface of oil or paint. If a white surface is desired, a mixture of one part of best linseed oil and one-third of well-bleached lead-varnish alone is used; but this mixture, if wished, may be colored yellow with ochre, red with cinnabar, blue with Prussian blue, or black with Frankfort black. Three or four thin layers of the paint may be applied, care being again taken that each coat is well dried before another is laid on. The oil, we are told, unites to the other surface so as to form a solid material, which is quite impervious to water, and cannot be rubbed off. The material so prepared may be written upon with a lead or colored pencil, and the writing or drawing can be washed off again any number of times. It might be expected that the mixture with plaster of Paris, which forms the ground-work, would set into a solid mass too quickly to allow of three or four coats of the same mixture being applied, but the author gives no intimation of such a danger.

Oils—To Solidify Petroleum and other Mineral.

Mosses containing lichenine and other pectine substances, for instance Japanese moss, are lixiviated with hot water and the lye obtained is intimately mixed with the petroleum or other oil. The compound, which becomes thick and even solid, can be easily trans-

ported. By adding alkali and filtering, or pressing, the petroleum is regained in a fluid state.

Oil for Railway Cars and Machinery.

Soda 56 lbs., thoroughly dissolved in 3 gals. water in a small boiler; then to be poured into a large cooler containing 30 to 36 gals. water, and well mixed; melt 1 cwt. 2 qrs. of tallow in a large boiler, then add 1 cwt. 3 qrs. of palm oil; boil together; as soon as it boils, the mixture is to be gradually cooled down to blood heat, stirring all the time. It is then to be run through a sieve into the cooler containing the soda and water; and must be stirred all the time it is running off, in order to mix properly.

Oil (Rape)—To Purify.

Rape oil, 100 gallons; strong oil of vitriol, 2 gallons. Put them into a cask and agitate for one hour, decant the clear oil in three days, and then divide the oil into two portions and put each into separate casks, add forty or fifty gallons of hot water to each, and agitate for one hour more; in three days or more, decant the clear for use.

Oil for Sewing Machines, Watches, etc.

Refined oil, for fine mechanism, can be prepared by putting zinc and lead shavings, in equal parts, into good Florence olive oil, and placing it in a cool place till the oil becomes colorless.

Oil—Watchmakers'.

This is prepared by placing a clean slip of lead in a small, white glass bottle filled with olive oil, and exposing it to the sun's rays for some time, till a curdy matter ceases to deposit, and the oil has become quite limpid and colorless.

Oil Paintings—To Preserve and Restore.

Many valuable paintings suffer premature decay, from the attacks of a

microscopic insect of the mite class. The best method of preventing this species of decay, is to add a few drops of creosote to the paste and glue used to line the picture, as well as to make a similar addition to the varnish. If it has already commenced, the painting should be at once carefully cleaned and relined, observing to employ a little creosote in the way just mentioned. Paintings should be kept in as pure an atmosphere as possible and in a moderately dry situation; as it is the presence of sulphureted hydrogen in the air that blackens the "lights," and causes most of the middle tints and shades to fade; and it is exposure to damp that produces mouldiness and decay of the canvas. For this reason valuable paintings should not be kept in churches, nor suspended against heavy walls of masonry, especially in badly-ventilated buildings. Excess of light, particularly the direct rays of the sun, also acts injuriously on paintings. The blackened lights of old pictures may be instantly restored to their original hue, by touching them with deutoxide of hydrogen, diluted with 6 or 8 times its weight of water. The part must be afterwards washed with a clean sponge and water.

(See Paintings—To Clean.)

Oleographs—Marbled Paper.

A so-called novelty has been advertised in England under this name. It is simply paper, on which peculiar accidental figures are formed by the following process: Oil is dropped on water; paper is laid on the surface; this is allowed to float an instant, and then drawn through ink, and washed with water. It appears to us that the main principle of this so-called novel method is identical with the manner in which thus far all marbled papers have been manufactured, namely, a shallow bath of

water mixed with some ox-gall is prepared and sprinkled with water colors mixed with gum, etc., on the surface, so that they float and form all kinds of accidental figures. Then a sheet of white paper is laid on the water for an instant, and taken up directly; after which it is dried.

Orchard—Care of.

Professor Bailey, of Cornell University, says:

Good drainage, natural or artificial, is essential to success. Trees are impatient of wet feet.

Good tillage increases the available food supply of the soil, and also conserves its moisture.

Tillage should be begun just as soon as the ground is dry enough in the spring, and should be repeated as often as once in ten days throughout the growing season, which extends from spring until July or August.

Only cultivated crops should be allowed in orchards early in the season. Grain and hay should never be grown..

Even hoed or cultivated crops may rob the trees of moisture and fertility if they are allowed to stand above the tree roots.

Watch a sod orchard. It will begin to fail before you know it.

Probably nine-tenths of the apple orchards are in sod, and many of them are meadows. Of course they are failing.

The remedy for these apple failures is to cut down many of the orchards. For the remainder the treatment is cultivation, fertilization, spraying—the trinity of orthodox apple growing.

Potash is the chief fertilizer to be applied to fruit trees, particularly after they come into bearing.

Potash may be had in wood ashes and muriate of potash. It is most commonly used in the latter form. An unusual application of potash should be made upon bearing orchards, 500 pounds to the acre.

Phosphoric acid is the second important fertilizer to be applied artificially to orchards. Of the plain superphosphates from 300 to 500 pounds may be applied to the acre.

Nitrogen can be obtained cheapest by means of thorough tillage (to promote nitrification) and nitrogenous green manures.

Barn manures are generally more economically used when applied to farm crops than when applied to orchards; yet they can be used with good results, particularly when rejuvenating the old orchards.

Ornaments—Crystal.

Alaska icebergs can be produced by making a saturated solution of plumbi nitras, then adding small, nice, white, and long pieces of ammonium chloride, and exposing undisturbed to the direct light of the sun for several days. Upon examination you will find formed beautifully white, opaque, needle-shaped crystals of chloride of lead representing the Alaska icebergs.

Another—Over a concentrated solution of nitrate of lead, contained in a globe, is poured a solution of chloride of ammonium; this must be done carefully so that the two fluids do not mix, when the formation of the Alaska iceberg will commence.

Otter—To Trap.

Of all animals, the otter is the most cunning; its sense of smell is remarkably good. If a person visits an otter slide, they will leave it immediately, and perhaps not return for two or three weeks. They appear to have a natural dread of man, and in their travels, will scarcely ever follow the creek or river close by a house. They land some distance above or below the dwelling of their dreaded enemy, and transport their precious coats over land, through the fields, to the water again. To trap the otter is almost out of the question. You must take a large sized

steel trap, set it, hang it over a fire and smoke it for two or three hours; then take a stick or board, and get into your canoe, (if you have one), go to the place most frequented by them, and place the trap about 3 inches under water and carefully cover it with leaves, light trash or grass, which you can fish up from the bottom of the stream. Be very careful not to touch the bank above water, if you do, it is all over with you. He can read in the print of boot heels his death warrant, and he bids adieu to his haunts and seeks a peaceful home many miles distant. In going to your trap, never go nearer than the opposite side of the stream. If Mr. Otter should accidentally put on a wristlet, he will make directly for his den. If the trap is not heavy enough to drown him, a weight can be attached to the chain.

Otter—To Skin.

This is done by ripping down the back of each hind leg until the slits meet in the crotch; skin the body whole; don't rip up the belly; put a split stick over the bone of the tail between the hide and body and skin in this way; when skinned draw the head over a stretcher and let it remain until dry.

Otto of Roses.

Fill a large glazed earthen jar with rose leaves, carefully separated from the cups; pour upon them spring water, just sufficient to cover them, and set the jar with its contents in the sun for two or three days, taking it under cover at night. At the end of the third or fourth day, small particles of yellow oil will be seen floating on the surface of the water, which, in the course of a week, will have increased to a thin scum. The scum is the otto of roses; take it up with a little cotton tied to the end of a stick, and squeeze it into a phial.

Oven and Iron Ware (New)**—To Temper.**

Before new ovens are used, they should be heated half a day, and then put up the lid to keep the heat in. When heated the second time, they may be used for baking. If not treated in this way, they will never retain heat well. New flat-irons should be heated half a day before they are used. Iron ware of all kinds, and stoves should be heated gradually at first or they may crack.

Owl (The)—To Catch.

Owls are very destructive to poultry, especially in the breeding season, and are much more dangerous than hawks, inasmuch as they pay their visits to the roosts in the night. There is no effectual safe guard against their visits unless you have the hennery made owl-proof. Many farmers make their roosts under an open shed, or upon the trees, which are as free to birds of prey as to the hens. Chickens are very delicate food for young owls, and

sometimes a dozen will be missing from the perch in a night, and their feather and claws be found the next day in a neighboring owl's nest. Old hens will be taken and their heads be eaten off and the carcass be dropped under the tree, quite too heavy for the owl to carry off. Not a moment should be lost when these depredations occur. Tie the dead fowl upon the limb or the perch where it was accustomed to roost, and shut up the other fowls. The dead fowl should be tied in a roosting position, so as to seem alive to the owl. Place a small steel trap on the back of the hen and fasten it to a neighboring limb. The owl will generally make his appearance the following night, and in swooping down upon the back of the hen will find his claws securely fastened in the trap. A small rat-trap without teeth is the best. the teeth would be apt to cut off the legs or claws and release the owl. The trap will often save many days of hunting a mean, skulking enemy, who only plunders in the night.

P**Packing—Hints on.**

In packing up a parcel of books, be careful, in order to preserve them from rubbing, to place a sheet of white paper over the cover of each, and pack the books together in such a way that one will bind the other, and thus form a secure parcel. Use abundance of wrapping paper and strong cord. If the parcel exceeds twelve inches in breadth, draw a cord tightly, but not too much so, round the sides, which will materially aid in keeping it secure and compact.

As a rule, furniture and earthenware should be packed by those who are accustomed to it.

The packing of flowers and fruit may be left in the hands of the gardener.

Every packer should be very careful in driving nails into packed boxes; screws are much to be preferred. In packing articles which are liable to break, place the heaviest articles at the bottom, and see that plenty of straw, soft paper, and paper shavings are provided, wherewith to wrap up and separate each particular article.

Packages of glass and other fragile materials ought to be marked "Brittle (or fragile). With care," in plain and conspicuous letters on the parcel, or packing case.

Painters—Rules for.

Avoid spattering, for it is unpleasant as well as dangerous to be continually enveloped in robes of poisonous paint.

Never attempt to eat or sleep with-

out first washing the hands and face and rinsing the mouth.

Wash the whole surface of the body at least once a week, with soft water.

Keep the buckets, brushes, etc., clean, so that they may be handled without smearing the hands.

Every painter should wear overalls, or change his clothing throughout once a week at least, in the meantime thoroughly airing those he has thrown off.

Keep the shops clean and well ventilated.

Never sleep in a paint-shop, nor in a newly-painted room, nor paint the walls of a room with any of the metallic greens.

Never suffer the paint to accumulate upon the clothing, nor upon the finger nails.

Never wash the hands in turpentine, as it relaxes the muscles and injures the joints. Any animal oil, or even linseed oil, is better.

Never drink water that has stood any length of time in a paint-shop, or in a newly-painted room.

Never use spirituous liquors, especially when ailing from the effect of paint, as it unites with the mineral salts and tends to harden them, and causes inflammation of the parts where they concrete.

Milk, sweet oil, and such liquids, should be used freely, as they tend to soften the accumulated poisons, and carry them off.

Vinegar and acid fruits, used constantly, unite with the lead that may be in the stomach, chemically changing it to the acetate, or sugar of lead, which is by far the least dangerous. Acetate of lead is scarcely recognized as a poison.

Avoid breathing the dust when emptying papers of dry colors.

Make your smalts where there is a current of air; and, while stirring,

stand to the windward, that you may not inhale the smoke.

Painting Outside Houses.

Repeated experiments prove that paint applied between November and March, will last twice as long as that applied in warm weather. The reason is that in cold weather the component parts of the paint form a hard substance on the surface; almost as hard as glass; but in warm weather the oil penetrates the boards and the paint wears off.

Paints—To Mix.

In mixing paints, observe, that for out-door work you must use principally, or wholly, boiled oil, unless it is for the decorative parts of houses, etc., then mix as for in-door work.

For in-door work use linseed oil, turpentine, and a little dryer, observing that the less the oil, the less will be the gloss, and that for flatted white, etc., the color, begin ground in oil, will scarcely require any further addition of that article, as the object is to have it dull.

Paint—Flexible.

Yellow soap cut into slices, $1\frac{1}{2}$ lbs.; boiling water, 1 gall.; dissolve and mix while hot with oil paint, $1\frac{1}{4}$ cwt. Used to paint canvas.

Paint—Cheap.

Take a bushel of well-burnt lime, white and unslaked; 20 pounds of Spanish whiting, 17 pounds of rock salt, and 12 pounds of brown sugar. Slake the lime and sift out any coarse lumps and mix it into a good white-wash with about 40 gallons of water, and then add the other ingredients, and stir the whole together thoroughly, and put on two or three coats with a common brush. This is a cheap paint. Five dollars' worth ought to make the building look a hundred dollars' worth better. This makes

a coat that does not wash off, or easily rub off, and it looks well, while it will go far to preserve the wood. It is, therefore, especially adapted to the outside of buildings that are exposed to the weather. Three coats are needed on brick and two on wood. If you want to get a fine cream color, add three pounds of yellow ochre to the above. If you prefer a fawn color, add four pounds of umber, one pound of Indian red, and one pound of lampblack. If you want a gray or stone color, add four pounds of raw umber and two pounds of lampblack. This will be more durable than common whitewash.

Another.—Take freshly-burned unslaked lime and then reduce it to a powder. To one peck or one bushel of this add the same quantity of fine sand or fine coal ashes, and twice as much fresh wood ashes, all these being sifted through a fine sieve. They should then be thoroughly mixed together while dry. Afterwards mix them with as much common linseed oil as will make the whole thin enough to work freely with a painter's brush. This will make a paint of light gray stone color, nearly white. To make it fawn or drab, add yellow ochre and Indian red; if drab is desired, add, burnt umber, Indian red, and a little black; if dark stone color, add lamp-black; or if brown stone, then add Spanish brown. All these colors should, of course, be mixed in oil and then added. This paint is much cheaper than common oil paint. It is equally well suited to wood, brick, or stone. It is better to apply it in two coats; the first thin, the second thick.

Paint—Drying (Quick).

Twelve parts of shellac and four parts of borax are added to one hundred parts of water; heat is carefully applied while the mixture is con-

tinually stirred, and soon a complete solution is obtained which is colorless or brown according to the color of the shellac employed.

This solution forms a varnish perfectly impermeable to water, and not acted on by the atmosphere. It can be used with oil paints, to make them dry quickly, by adding an equal part of the varnish with a little turpentine to the oil color, and rubbing them together until a homogeneous fluid mixture is obtained. This mixture dries in from ten to fifteen minutes, and hence only a small quantity must be prepared at a time.

Paint—Enamel.

Special preparations of paint, styled "enamel," are now made, suitable for both useful and decorative purposes—garden stands, indoor furniture or ornaments, baths, etc. They are ready mixed in a variety of shades, can be easily applied, and dry with a hard glossy surface.

Paint, Fire-Proof—For Roofs, etc.

Slake stone lime by putting it into a tub, to be covered, to keep in the steam. When slaked, pass the powder through a fine sieve; and to each 6 qts. of it add 1 qt. of rock-salt, and water 1 gal.; then boil and skim clean. To each 5 gals. of this add pulverized alum 1 lb., pulverized copperas $\frac{1}{2}$ lb.; and still slowly add powdered potash $\frac{1}{4}$ lb.; then fine sand or hickory ashes 4 lbs. Now add any desired color, and apply with a brush. Looks better than paint, and is as durable as slate. It stops small leaks in roofs, prevents moss, and makes roofs incombustible and renders brick impervious to wet.

Paint, Milk—For Barns, etc.

Mix water lime with skim-milk to a proper consistence to apply with a brush, and it is ready to use. It

will adhere well to wood, whether smooth or rough, to brick, mortar, or stone, where oil has not been used, (in which case it cleaves to some extent) and forms a very hard substance, as durable as the best oil paint. It is too cheap to estimate, and any one who can use a brush can put it on.

Paint—Petroleum as.

This can be used to great advantage on a farm as a preserver of wood. It is not properly a paint. No coloring matter should ever be mixed with it. Ordinary linseed-oil paint preserves wood by forming a coat that excludes the atmosphere from the pores. Petroleum penetrates the wood and excludes the air by filling up the pores.

Old barns from which the paint is worn off will be much improved by a liberal coat of petroleum. It can be put on with a whitewash brush. The point is to get on as much as the wood will absorb. It is better to go over the work rapidly and then the next day go over it again. For shingle roofs, new or old, nothing is better than petroleum. In making a new roof we would dip the shingles by the bunch in petroleum; until they were saturated, before putting them on. This would save the expense of applying it on the roof with a brush.

To make wood durable.—The timbers of barns and other buildings in the parts most liable to decay, should be treated with petroleum. A good way to do this is to bore a hole with an auger into the stick of timber, and fill it with the oil, and as it is absorbed, add more. The hole should afterwards be plugged up. The ends of all the timber should also be washed over repeatedly with petroleum before being put into the building. In this way soft maple, black ash, and bass wood may be made durable

timber, and as useful as oak when strength is not required.

Paint Skins—To Use.

Dissolve sal-soda, $\frac{1}{2}$ lb., in rain-water, 1 gal. The skins that dry upon the top of paint, which has been left standing for any length of time, may be made fit for use again by covering them with the sal-soda-water and soaking them therein for a couple of days; then heat them, adding oil to reduce the mixture to a proper consistence for painting, and straining. Painters who are doing extensive business will save many dollars yearly by this simple process.

Paint (Oil)—To Reduce with Water.

Gum shellac, 1 lb.; sal-soda, $\frac{1}{2}$ lb.; water, 3 parts; boil all together in a kettle, stirring till dissolved. If it does not dissolve, add a little more sal-soda; when cool, bottle for use; mix up two quarts of oil paint as usual, any color desired, using no turpentine; put 1 pint of the gum shellac mixture with the oil paint when it becomes thick; it can then be reduced with water to a proper thickness to lay on with a brush.

Paint—Waterproof.

Ochre, 96 parts, lamp-black, 16 parts; boiled oil to mix. Then add yellow soap, 2 parts, dissolved in water, 8 parts. Well mix, and apply two coats of this mixture with a paint-brush, at intervals of two or three days; lastly, give a finishing coat of varnish formed of lamp-black and boiled oil, well ground together. Sufficient boiled oil must be used to reduce the mixture to the consistence of a thick varnish.

Paints—White.

Nearly all whites have their base in the oxides and carbonates of different metals.

White Lead is a carbonate of

lead, prepared by submitting common lead to the action of acetic acid, or vinegar, at a high temperature. It is poisonous, especially when combined with oils or fatty matter. The chief adulterations are barytes, whiting, and silicate of potash.

Carbonate of Barytes is less poisonous than lead; it is certainly not as valuable, and has very little body, though it is whiter, and when combined with lead in proper proportions, makes a very good white, and does not injure the lead for ordinary purposes. The sulphate of barytes is often used in the cheaper leads, but is an inferior article.

Zinc White is an oxide of zinc. It is a durable and beautiful white, besides being harmless. All the very best and finest work in the cities is now finished with zinc. It has less body than lead, but is vastly whiter and more durable, and does not, like lead, turn yellow when excluded from the light and air.

China White is lead that has been elutriated, or washed, thereby freeing it from all impurities.

Whiting is well known to all. It is a carbonate of lime. It is of no utility as a paint, as it will become spotted, and rubs off after the oil is evaporated. It is properly fit for putty, and various room washes.

Pearl White is generally used for the finer and more delicate branches of painting. It is a submuriate of bismuth.

Kremlitz White is a superior quality of lead. All German leads are considered the best, as their ores contain less iron.

Silver White is also a lead prepared by elutriating. It is the best of the tube colors for general use.

Paints—Yellow.

Yellows have their bases in iron, lead, quicksilver, and arsenic.

Chrome Yellow. The best is made from chromium and the acetate or the nitrate of lead, and is properly a chromate of lead. An inferior article is prepared with whiting. The best now in use for general painting has its base in silicate of potash and barytes.

Gamboge is the concrete juice of various trees in Ceylon. It is a transparent color, and consequently useful as a glazing color.

Yellow Ochre is an earth. The best comes from France.

Stone Ochre is also an earth, found in many parts of Europe

Naples Yellow is an earth found near Naples, but most of that now in the market is composed of lead, alum, sal-ammonia, and antimony. It is a soft, bright, and durable color.

Turner's Yellow, a muriate of lead. This is a beautiful tint, and has formerly been much used among coach-painters.

Paint, Zinc—Preparation of.

A useful hint in regard to the preparations of paint with oxide of zinc instead of white lead will be found in the following instructions, published in a German journal: The ordinary boiled linseed oil should be replaced in the mixing operation by one prepared by gently boiling two hundred pounds of the raw oil for five or six hours, then adding about twenty-four pounds of coarsely broken lumps of binoxide of manganese, and continuing the boiling operation for about ten hours longer. In this manner a very quickly drying linseed oil is obtained, which is eminently fit for the purpose of being used with zinc-white and other zinc colors. According to the writer of the article, much depends upon the use of old linseed oil, and also upon the pains taken with the boiled oil, which, unless carefully kept from the

contact of the air, becomes thick in a very short time. The boiled oil so prepared is not to be used alone in painting with zinc-white, but must be mixed with from three to five per cent. of raw linseed oil while the paint is being mixed together.

Paint—Zinc-Water.

The unpleasantness of occupying a newly-painted house may, it is said, be avoided by the use of zinc-water paint. Powdered oxide of zinc (which may be heated with a little potato starch if more "body" be wanted) is combined with the desired mineral or vegetable color, and with this an aqueous solution of chloride of zinc, to which some tartrate of potassa has been added, is then mixed; the water paint thus formed being applied with a brush on the surface to be coated. In half an hour this paint will be perfectly dry; and the object of the alkaline tartrate is to make the drying process less rapid. The advantages of using the water paints are very numerous: they are more durable than oil paints, do not blacken by exposure to sulphurous vapors, are devoid of odor, dry quickly, resist dampness and the action of water, can be cleansed with boiling water and soap like oil paints, and preserve the wood to which they are applied from decay and render it less combustible. This latter property may be increased by the addition of borax. Both the oxide and the chloride of zinc can be manufactured without danger to the health of the workman, sold at low price, and kept for any length of time in any climate.

Painted Surface—To Clean.

Provide a plate with some of the best whiting to be had, and have ready some clean warm water and a piece of flannel, which dip into the water and squeeze nearly dry; then

take as much whiting as will adhere to it, apply it to the painted surface, when a little rubbing will instantly remove any dirt or grease. After which wash well with clean water, rubbing it dry with soft flannels. Paint thus cleaned looks as well as when first laid on, without any injury to the most delicate colors. It is far better than using soap, and does not require more than half the time and labor.

Paint—To Remove Odor of.

Place a vessel full of lighted charcoal in the middle of the room and throw on it two or three handfuls of juniper berries. Shut closely the windows, doors and all means of ventilation for about twenty-four hours, when they may be opened and it will be found that the unpleasant smell will be entirely gone. This will not injure the articles left in the room, such as tapestry, etc., and can be considered reliable.

Paintings, Oil—To Clean.

Rub freely with a slice of raw potato. Will not injure any painting.

Paint—To Remove from Stone.

A writer having to clean a pulpit and sedilia in which the carving and tracery were almost filled up with successive coats of paint, was informed that common washing-soda, dissolved in boiling water, and applied hot, would remove it. He says, "I found that 3 lbs. of soda, to a gallon of water, laid on with a common paint-brush, answered the purpose admirably, softening the paint in a short time, so that it was easily removed with a stiff scrubbing-brush; afterward, on adding a few ounces of potash to the solution, it softened more readily than with soda only. The stone in both cases was a fine freestone."

Painted Wainscot—To Clean.

To clean painted wainscot or other woodwork, fuller's earth will be found cheap and useful: on wood not painted it forms an excellent substitute for soap.

Palindrome.

Palindrome, from the Greek *palin-dromos*, running back again. This is a word, sentence, or verse that reads the same both forwards and backwards—as, madam, level, reviver; live on no evil; love your treasure and treasure your love; you provoked Harry before Harry provoked you; servants respect masters when masters respect servants. Numerous examples of Palindrome or reciprocal word-twisting exist in Latin and French; but in English it is difficult to get a sentence which will be exactly the same when read either way. The best example is the sentence which, referring to the first banishment of the Great Napoleon, makes him say, as to his power to conquer Europe:

"Able was I ere I saw Elba."

Panes (Window)—To Remove Broken.

If you have not a glazier's knife you can melt the putty in a few hours by putting soft soap upon it; then you can cut it away easily with a knife, without risk of breaking the glass.

Paper—Copying.

To make black paper, lamp-black mixed with cold lard; red paper, Venetian red mixed with lard; green paper, chrome green mixed with lard; blue paper, Prussian blue mixed with lard. The above ingredients to be mixed to the consistency of thick paste, and to be applied to the paper with a rag. Then take a flannel rag and rub till all color ceases to come off. Cut your sheets four inches wide,

and six inches long, put four sheets together, one of each color, and sell for twenty-five cents per package. The first cost will not be over three cents. Directions for writing: Lay down your paper upon which you wish to write; then lay on the copying paper, and over this lay another sheet of paper, then take a hard lead pencil and write as you would without the copying paper.

Paper—Oiled.

Brush sheets of paper over with boiled oil, and suspend them on a line until dry. This paper is water-proof, and is employed to tie over preserve pots and jars, and to wrap up paste blacking, etc.

Paper—Parchment.

To convert paper into vegetable parchment, immerse it for a few seconds in a cold mixture of one volume water and two volumes sulphuric acid. Wash out rapidly by plunging into a large quantity of cold water; and finally remove all traces of the acid by further immersion in water, to which a small quantity of ammonia has been added. On drying, the parchment has a tendency to contract unequally. This can be prevented by attaching it to a frame while still wet, or by allowing it to dry under a press.

Paper prepared in this way is very transparent, and can be used for copying by tracing. It is also extensively employed as a substitute for parchment made from sheepskin in diplomas, certificates, patents and for letter envelopes.

The precautions to be observed in its manufacture are, not to keep it too long in the bath, and afterward to be sure to remove every trace of the acid.

The Applications of Parchment Paper are daily extending. One variety can

be employed as a substitute for cloth in binding, and a thicker variety for imitation of half-calf bindings. One of the most important applications is to prepare ice-sacks for medical use. These bags are a great improvement on the India rubber or beef-bladder bags usually employed for this purpose. The parchment bag, in consequence of the slow escape of the water through the membrane, is kept constantly cold, and no change of its contents becomes necessary. The evaporation of the water from the surface keeps down the temperature of the contents of the bag. Parchment paper is also recommended for wrappers for goods which may be injured by dust or moisture, and is prepared for this purpose.

The principal use, however, of the parchment paper at present is as a porous membrane in the refining of sugar. This paper will separate different impurities, and finally the crystallizable sugar from molasses, if placed between the latter substance and water. This peculiar action of the pores of the paper is called osmose, and the whole operation diffusion. Dubrunfaut some three or four years ago introduced this system for the refining of sugar into Germany and France. Extensive pieces of apparatus have been constructed for this purpose, called osmometers and osmogenes.

Paper—Tracing.

In order to prepare a beautiful transparent, colorless paper, it is best to employ the varnish formed with Demarara resin in the following way: The sheets intended for this purpose are laid flat on each other, and the varnish spread over the uppermost sheet by means of a brush, until the paper appears perfectly colorless, without, however

the liquid therein being visible. The first sheet is then removed, hung up for drying, and the second treated in the same manner. After being dried, this paper is capable of being written on, either with chalk, or pencil, or steel pens. It preserves its colorless transparency without becoming yellow, as is frequently the case with that prepared in any other way.

Another.—Open a quire of double crown tissue paper, and brush the first sheet with a mixture of mastic varnish and oil of turpentine, equal parts; proceed with each sheet similarly, and dry them on lines by hanging them up singly. As the process goes on, the under sheets absorb a portion of the varnish, and require less than if single sheets were brushed separately. It leaves the paper quite light and transparent, it may readily be written on, and drawings traced with a pen are permanently visible. Used by learners to draw outlines. The paper is placed on the drawing, which is clearly seen, and an outline is made, taking care to hold the tracing paper steady. In this way elaborate drawings are easily copied.

Tissue paper may also be made transparent by using:—Nut oil and oil of turpentine, equal parts, dry the paper with wheat-flour immediately. Or Canada balsam, and turpentine to thin it.

Paper—To Make Transparent.

Any paper is capable of the transfer of a drawing in ordinary ink, pencil, or water color, and even a stout drawing paper can be made as transparent as the thin yellowish paper at present used for tracing purposes. The liquid used is benzine. If the paper is dampened with pure and fresh distilled benzine, it at once assumes transpa-

rency, and permits of tracing being made, and of ink or water colors being used on its surface without any "running." The paper resumes its opacity as the benzine evaporates, and if the drawing is not then completed, the requisite portion of the paper must again be dampened with the benzine. This new discovery of the property of benzine will prove of service to the art profession, in allowing the use of stiff paper where formerly only a slight tissue could be used.

Paper—Test for Wood in.

A weak solution of sulphate of aniline is now used for detecting the presence of wood fiber in paper. One drop of the liquid on a pointed glass rod applied to paper containing such fiber, even in minute quantities, if prepared in a mechanical way, will produce an intense yellow color. This reaction does not take place when the wood fiber has been chemically prepared.

Paper—Waxed.

Place a sheet of stout paper on a heated iron plate, and over this place the sheets of tissue paper to be waxed. Inclose wax or stearine in a piece of muslin, and as it melts spread over the tissue paper equally; proceed with others similarly until enough are prepared. Used to cover galipots, ointments, etc.

Paper—To Remove Stains from.

The process must depend on what the stains are. If they are those of writing ink, a solution of citric, tartaric, or oxalic acid will be successful. If grease, take a heated iron and press it upon blotting-paper placed on the stains. After this process has been frequently repeated, take a soft brush and apply oil of turpentine to the stains on both sides of the paper; lastly, with a clean brush,

apply to the spots already almost gone rectified spirit of wine.

Paper—To Take Writing Out of.

Solution of muriate of tin, two drachms; water, four drachms. To be applied with a camel's hair brush. After the writing has disappeared, the paper should be passed through water, and dried.

Papier-Mache—To Clean.

Wash the article well with cold water and a sponge, dust flour over it while still damp, and rub dry with flannel.

Paper—Wrapping.

This may be piled on the floor under the large shelf in the tool closet. It can be bought at a low price by the ream, at the large paper warehouses; and every house should keep a supply of it in several varieties.

Coarse brown paper for common purposes, which is strong, thick, and in large sheets, is useful for packing heavy articles; and equally so for keeping silks, ribbons, etc., as it preserves their colors.

Printed Papers are unfit for wrapping anything, as the printing ink rubs off on the articles enclosed in them, and also soils the gloves of the person who carries the parcel.

Waste Newspapers better be used for lighting fires and singeing poultry. If you have accumulated more than you can use sell them.

Waste Paper that has been written on, cut into slips, and creased and folded, makes very good lamp-lighters. These matters may appear of trifling importance, but order and regularity are necessary to happiness.

Paper Flowers.

Occasionally we see very handsome paper flowers; but then they are made by persons of taste with great care and from the best French tissue paper.

Dip a large camel's hair pencil in

thin gum arabic, and brush quickly over the whole surface of the paper from which you intend to cut your flower; this fills the pores of the paper and gives it a little stiffness.

Cut roses, japonicas, etc., from paper patterns; then paint with water color. Form the petal with your fingers and a pair of scissors. Cut a fringe of yellow paper for stamens. Make your leaves and calyx of green tissue paper, well sized with gum. Cover fine well-annealed wire with green paper for stalks, and fasten the parts of the flower together with gum.

For a daisy, chrysanthemum, or aster, double the paper two or three times; cut down two-thirds; roll the uncut side firmly round and round the bent end of a piece of wire suitable for the stalk.

Buds, pericarps, etc., are made either by stuffing with a bit of cotton, or winding up paper.

Variegated pinks look well. Paint strips of paper in slashes here and there as you see on the petal of the carnation—some very dark carmine, some merely light touches. Cut off suitable width for petals, and wind around a paper center. Take natural flowers for models.

Paper Hanging—Improved Paste for.

A form of paste for attaching paper hangings to walls, and one which, besides possessing the merit of cheapness, has the advantage of preventing the paper from separating or peeling off, is prepared by first softening 18 pounds of finely powdered bole in water, and then draining off the surplus water from the mass. One and a quarter pounds of glue are next to be boiled into glue water, and the bole and two pounds of gypsum are then stirred in, and the whole mass forced through a sieve by means of a brush. This is afterwards diluted with water

to the condition of a thin paste or dressing, when it is ready for use. This paste is not only much cheaper than the ordinary flour paste, but it has the advantage of adhering better to white-washed surfaces, especially to walls that have been coated over several times, and from which the coating has not been carefully removed. In some cases it is advisable, when putting fine paper on old walls, to coat them by means of this paste with a ground paper, and to apply the paper hanging itself to this with the ordinary paste.

Paper Hangings—To Clean.

Cut into 8 half-quarters a stale loaf of bread; with one of these pieces, after having blown off all the dust from the paper to be cleaned by means of a good pair of bellows, begin at the top of the room, holding the crust in the hand, and wiping lightly downward with the crumb, about half a yard at each stroke till the upper part of the hangings are completely cleaned, all around; then go again round with the like sweeping stroke downward, always commencing each successive course a little higher than the upper stroke had extended, till the bottom be finished. This operation, if carefully performed, will frequently make very old paper look almost equal to new. Great caution must be used not by any means to rub the paper hard, nor to attempt cleaning it the cross or horizontal way. The dirty part of the bread must be each time cut away, and the pieces renewed as often as necessary.

Paper-Hangings (Poisonous) —Test for.

A good test for poisonous paper-hanging is common spirits of hartshorn; or ammonia is a sure one for arsenic. On application the beautiful but dangerous green turns to a blue. The existence of arsenic in rooms hung with green paper may also be immediately detected by lighting a bit of the sus-

pected paper at a candle. When the paper is well lighted, blow it out, then smell the smoke, if it contains arsenic, the smell will be that of garlic.

Parchment.

Is the skins of sheep, she-goats, or other animals, stretched on a frame, separating the flesh and hair from the skin, the thickness reduced by a sharp instrument, and the surface smoothed and dried for use. The name means "paper of Pergamos" (Asia Minor), where parchment was first used in 200 B. C. "Vellum" is prepared from the skins both of kids and of calves.

Parchment—How to Make.

This article is manufactured from sheep skin, cleared from lime. The skin is stretched on a frame where the flesh is pared off with an iron circular knife; it is then moistened with a rag, and whiting spread over it; the workman then, with a large pumice-stone, flat at the bottom, rubs over the skin, and scours off the flesh. He next goes over it with the iron instrument as before, and rubs it carefully with the pumice-stone without chalk; this serves to smooth the flesh side. He drains it again by passing over it the iron instrument as before; he passes it over the wool side, then stretches it tight on a frame. He now throws more whiting and sweeps it over with a piece of woolly lambskin. It is now dried, and taken off the frame by cutting it all round. Thus prepared it is taken out of the skinner's hands by the parchment maker, who, while it is dry, pares it on a summer (which is a calf-skin stretched on a frame), with a sharper instrument than that used by the skinner, who, working it with the arm from the top to the bottom of the skin, takes away about half its substance, which leaves the parchment finished.

Parrots—Cages for.

The first requisite for all parrots is a strong roomy cage. The "Indestruc-

tible Cage," made of corrugated wire, with perches of *lignum vitæ*, is the best as they are most destructive birds, and delight in mischief. If it be possible to find a loose wire or a weak spot in the cage, it is worked upon with beak and claws till it is quite destroyed. Macaws and cockatoos are chained to a perch by the leg, and two little tins, one containing food, the other water, are fastened to the perch, and a large flat tin underneath contains gravel, which is indispensable to their health. All parrots must be kept in a warm room during the winter; they are natives of the tropics, and in this climate are extremely susceptible to cold, and should be carefully guarded from draughts, which often produce asthma, of which disease a large proportion of parrots in confinement die; at the same time they require a good deal of fresh air and water, both to drink and bathe in. A parrot ought to have a bath, at least once a week in summer, and if the bird will not bathe himself, he should have tepid water poured over him from a watering-pot; he should then be set in the sun or before a fire to dry, and great care must be taken that the cage is perfectly dry. Parrots are subject to gout, and sometimes loose their toes from this disease, which is brought on by damp.

Parrots—Food for.

Wild parrots live on grain, fruit, and nuts of various kinds; the food of the tame bird is much the same,—Indian corn, boiled and allowed to become cold, and canary seed. They are very fond of hemp seed; this last is, however, too heating for general use. Ripe fruit, and nuts of any kind, they may have in moderation; a bit of dry mealy potato, a crust of bread or toast, is also a great favorite with some; and a little white bread, soaked in fresh milk with some sugar, should be given

once a day, just as much as the bird will eat at one time. If the food is allowed to remain in the cage it will get sour, and it is then most prejudicial; in fact, parrots are like children, some prefer one thing and some another. But one rule must be scrupulously observed—never give them meat, no matter how small the quantity, it is always hurtful; and, indeed, butter or grease of any kind is very objectionable. With ordinary care these birds live to a great age, and they are so amusing, and often so affectionate, that it is a sad affair to lose one by carelessness.

Parsnips—To Raise.

Select a heavy, but clean and rich, loam. Plow it deep, and harrow it thoroughly as early as it can be worked; mark off in rows fifteen inches apart, and drill in the seed or sow by hand. Use plenty of the seed, two or three to the inch, and be sure it is fresh. Go through the rows with a pronged hoe, or other implement, as soon as they can be distinguished. When large enough, thin the plants to stand four or five inches apart, and be sure that they stand singly. Keep the land very clean by frequent hoeing.

Paste—That will Keep a Year.

Dissolve a teaspoonful of alum in a quart of warm water. When cold, stir in as much flour as will give it the consistency of thick cream, being particular to beat up all the lumps; stir in as much powdered resin as will stand on a dime, and throw in half-a-dozen cloves to give a pleasant odor. Have on the fire a teacupful of boiling water; pour the flour mixture into it, stirring well all the time. In a very few minutes it will be of the consistency of mush. Pour it into an earthen or china vessel; let it cool; lay a cover on, and put it in a cool place. When needed for use, take out a portion and soften it with warm water. Paste

thus made will last twelve months. It is better than gum, as it does not gloss the paper, and can be written upon.

Another.—Prepare in the ordinary way a good flour or starch paste. It can be preserved by adding to it a small quantity of brown sugar, then corrosive sublimate in fine powder in the proportion of about a teaspoonful to a pint of paste; add also a teaspoonful of oil of lavender, or rosemary, or cloves, or any of the essential oils, and a few drops of carbolic acid, and stir well with a wooden spatula. This paste will keep for any length of time perfectly pure. The rationale is this: The corrosive sublimate insures it against fermentation, and the essential oil and carbolic acid against mold. Corrosive sublimate in the above is a poisonous agent, but it is not expected that the paste is to be eaten because of its containing sugar; and in the use of it as paste it is not in the least dangerous, as we all handle with impunity many things more poisonous than this.

Paste—For Scrap Books.

Take the best of laundry starch in a clean dish, wet it with sufficient cold, soft water, to permit it being stirred smoothly. Pour on boiling water, slowly stirring until the starch is clear and jelly-like. Ready for use as soon as cool. For many uses*preferable to a mucilage of gum Arabic.

Paste that will Adhere to Any Substance.

Sugar-of-lead, 720 grs., and alum, 720 grs.; both are dissolved in water. Take 2½ oz. of gum arabic and dissolve in 2 quarts of warm water. Mix in a dish 1 lb. of wheat flour with the gum water cold, till in pasty consistence. Put the dish on the fire, pour into it the mixture of alum and sugar of lead. Shake well, and take it off the fire when it shows signs of ebullition. Let the whole cool, and

the paste is made. If the paste is too thick, add to it some gum water, till in proper consistence.

Paste Resembling the Diamond.

Take white sand, 1,800 parts; red lead, 1,200 parts; pearlsh, 900 parts; nitre, 600 parts; arsenic, 100 parts; manganese, 1 part. To render this paste still harder, use less lead, and if it should incline to yellow, add a little more manganese.

Paste for Labeling on Tin.

Any paste, such as you buy in commerce, or make yourself from gum arabic or gum tragacanth, with the addition of a little wintergreen oil, will do for this purpose. It is only necessary to remove from the tin a thin film of gease which prevents perfect adhesion, causing it to blister off on drying. This is accomplished by dipping a rag in a dilute solution of caustic soda or potash—rubbing the spot on which to fix the label, and drying it with another rag. No label put on in this way will come off again.

Pastilles—Vanilla.

Pastilles which give out the scent of vanilla may be thus prepared: Galbanum, 24 parts; cloves, 16 parts; vanilla, 32 parts; essence of cloves, 1 part; and essence of vanilla, 16 parts; all the ingredients being powdered and mixed into a mass of mucilage of gum arabic. Liquid compositions of a similar nature may also be prepared, and of which a small quantity may be poured into a saucer and ignited. A fluid of this kind may be formed of gum benzoin, 32 parts; gum galbanum, 24 parts, and bruised cloves, 17 parts. The materials are to be well broken up into fragments and put into a stoppered bottle, with a sufficient quantity of rectified spirits of wine to dissolve the gums. The vessel must be kept in a warm place for some time, until the benzoin and galbanum are dissolved,

and then the clear liquor should be decanted into another bottle, and preserved for use.

Pastimes—Evening.

Among the innocent recreations of the fireside, there are few more commendable and practicable than those afforded by what are severally termed Acrostics, Anagrams, Arithmorems, Charades, Conundrums, Cryptographs, Enigmas, Hidden Words, Logogriphs, Puzzles, Rebuses, Riddles, Transpositions, etc. Of these there are such a variety that they are suited to every capacity; and they present this additional attraction, that ingenuity may be exercised in the invention of them, as well as in their solution. Many persons who have become noted for their literary compositions may date the origin of their success to the time when they attempted the composition of a trifling enigma or charade.

Peach-Grower—Principles for.

(1) Select high, dry, sandy, or sandy loam soil. The peach will endure more drought than any other fruit tree.

(2) Careful selection of those varieties most hardy in fruit buds.

(3) Vigorous, healthy stocks.

(4) Budded from healthy, bearing trees.

(5) Thorough cultivation from early in the spring until the first of August.

(6) Liberal manuring broadcast, manure rich in potash, wood ashes, such as often can be obtained at mills.

(7) Low heads, pruned every year. Cut off one-third of each year's growth.

(8) Wash every year with a wash made of lime, soft soap, with a little crude carbolie acid added to protect from borers.

(9) Look carefully over the trees once or twice a month; if any disease makes its appearance and the tree cannot be restored to health, pull it up and burn.

(10) If weeds grow after it is too

late to plow under, mow down and leave for a mulch.

(11) Protect against rabbits with suitable wash, paper, or split corn stalks. The above holds good for plums budded on peach stock, with the exception of trimming. Cherry trees require less cultivation and trimming than other trees.

Peach—A Short Summary of the.

The peach being a native of a mild climate, we should use every agency possible to protect it from the rigors of cold winter weather.

No fruit is more profitable when well grown.

Peach orchards should not be cropped (planted with crops) after the third year, and if on sand or light loam it is best not to plant anything under them at any time.

Stir the soil frequently from April to August.

Never seed down a peach orchard, and never plant grain of any kind in it—unless it be corn for first two or three years, on good soil.

Carelessness and neglect will constantly deteriorate and detract from the usefulness and value of a peach orchard, and bring only a crop of disgust and aggravation.

Barn-yard manure must be used very sparingly, as it tends too much to succulent woody growth and much leafage; ashes and bones will produce the best results in fruit.

In pruning, no peach tree ought to grow over twelve to fifteen feet high; head back one-third of each year's growth, and when they get too large cut back to limb stubs and form a new top.

Peaches growing twelve feet from the earth can scarcely be gathered with profit, and if they fall, either by carelessness or accident, they are ruined, and thus the utility of the tree and its growth are neutralized.

Use the package demanded by your market, but be sure to pack closely, so that they may not roll about and chafe or bruise.

Advertise your business, your county and your state by a nice label on every package.

Haul to market or the shipping place in a spring vehicle by a careful driver.

Finally, buy your peach trees, from your Home Nursery—from men who have a reputation to sustain, and who consider you as a fellow citizen and neighbor, and will treat you right.

Peanut Culture.

It requires about two bushels to plant an acre. Well cured seeds are essential. The soil selected should be friable and light; red or chocolate-colored soils stain the nuts and impair their value. Land that has been in corn, or other hoed crops, except sweet potatoes, is preferred, and if it has not been heavily marled for previous crops, may be dressed with 150 bushels of marl or 50 bushels of lime to the acre. These may be sown broadcast or strewed in the furrow over which the beds are to be raised. The soil of a peanut farm requires to be continually renewed by very heavy dressings of marsh mud, woods litter and lime, and the putting of a piece of land in order for a single crop costs a good deal more per acre than is required to purchase good cotton land in the South. It is a very exhausting crop—it is therefore customary not to take a crop of peanuts from land oftener than once in three years.

Pear Orchards.

The pear is one of the finest fruits that we have and when picked at the proper time and well ripened is a delicious morsel. Were it not for the blight to which many varieties are subject it would be planted more largely than it is. The pear should

never be allowed to ripen on the tree, but should be picked several days before ripening and sent immediately to market. If retained a few days they soon begin to soften and are liable to bruise in carrying to market, marring their appearance and injuring their sale. In order to obtain the top price for pears send them in nice clean crates of one bushel in each crate, wrap each pear in thin, clean white paper, and pack closely together.

Pears—Soil For.

Clay soil is considered best for pear culture, and still it should not be too tenacious and sticky. A pear orchard will not thrive so well on any soil that has not a clay sub-soil. Next to a friable clay loam, a gravel loam is most desirable. A light sandy soil is the least desirable of any, and yet pears can be grown on sandy soil.

Standard pears can be planted twenty to thirty feet apart according to circumstances and habits of growth. If planted thirty feet apart, dwarf pears can be planted between the rows each way. I prefer a standard pear for general orchard culture, for the reason that they require less fertility and cultivation, and for the further reason that they are longer lived and make larger and more permanent trees.

Dwarf Pears.—Dwarf pears have the advantage of coming into earlier bearing. The dwarf pear is not short lived. It requires more pruning and more attention than the standard pear. Many varieties do better on the dwarf pear than on the standard.

The dwarf tree is indispensable; it is necessary in gardens of limited space; some desirable varieties can be grown only on quince stock, and its early bearing makes it desirable in starting new places. Afterwards a tree can be changed to a standard by "lipping," which consists in removing the soil around the trunk to the depth of two

or three inches, when the pear stock will be found to have overgrown the quince. By puncturing this with a narrow gouge or pocket knife, raising narrow lips of the bark and the wood in six or eight places, equidistant around the trunk, returning the soil around the tree and covering with a light mulch, roots will stick out from the incisions and an even balanced standard tree will be secured.

Pear Trees—Care of.

Look over your pear trees and cut out all limbs that show blight—and mind this to cut 15 to 20 inches in the sound wood below the dead bark. Be careful about this. If you only cut out the dead wood, before the summer is half gone you will find your trees just about in as bad fix as if you had not cut any. Have a lot of courage and a sharp saw and you may save valuable trees to bear crops of fruit for a number of years. The Bartlett is a variety that will blight and still live and bear fruit, maybe for some years, but it is the only one, and it will help the Bartlett to cut the blight out. I am satisfied that we have as yet no such a thing as blight proof pear trees, and all who offer such for sale should be regarded as frauds or fools.

Perfume for Clothes.

A very pleasant perfume, and also a preventive against moths, may be made of the following ingredients: Take of cloves, caraway seeds, nutmeg, mace, cinnamon, and Tonquin beans, one ounce each; then add as much Florentine orris root as will equal the other ingredients put together. Grind the whole well to powder, and then put it in little bags among your clothes, etc.

Perfume of Flowers—To Extract.

Procure a quantity of the petals of any flower which has an agreeable

flavor; card thin layers of cotton wool which dip into the finest Florence oil; sprinkle a small quantity of fine salt on the flowers, and place layers of cotton and flowers alternately, until an earthen or wide-mouthed glass vessel is quite full. Tie the top close with a bladder, and lay the vessel in a south aspect, exposed to the sun, and in 15 days, when opened, a fragrant oil may be squeezed away from the whole mass, and but little inferior (if roses are used) to the dear and highly valued otto or attar of roses. (See Otto of Roses.)

Perfume for Sachets.

Orris root in powder, 1 lb.; musk, 12 grains; essence of lavender, 1 drachm; essence of ambergris, 1 drachm; essence of bergamotte, $\frac{1}{2}$ a drachm; essence of lemon, $\frac{1}{2}$ a drachm.

Another.—Take any quantity of pure starch in powder, color it with a little finely-powdered rose-pink, and perfume it with otto of roses, oil of rosemary, lavender, and neroli, letting the rose predominate.

Another.— $\frac{3}{4}$ of a lb. lavender flowers; $\frac{3}{4}$ of an ounce of dried thyme, $\frac{3}{4}$ of an ounce of dried mint, $\frac{1}{4}$ of an ounce of cloves; $\frac{1}{4}$ of an ounce of caraway seeds; 1 ounce of fine salt. The lavender flowers must be rubbed from the stalks, the thyme and mint reduced to powder, and the cloves and caraway seeds bruised in a mortar. The whole should then be mixed with the salt which must be well dried before it is used. When the ingredients have been thoroughly mixed, the compound may be put into silk or muslin bags for use.

Perfume Powder for Boxes and Drawers.

Coriander powder, Florentine orris powder, powdered rose leaves, powdered sweet-scented flag-root of each two ounces; lavender flowers powdered four ounces, musk one scruple, pow-

der of sandal-wood, 1 drachm. Mix.

Another.—take of cloves, caraway seeds, nutmeg, mace, cinnamon and Tonquin beans, of each one ounce; then add as much Florentine orris root as will equal the other ingredients put together. Grind the whole well together, and then put it in little bags among your clothes, etc.

Perfume for Gloves.

Oil of lavender, 20 drops; neroli, 10 drops; essence of musk, 5 drops; otto of roses, 2 drops; alcohol, 2 ounces. Mix.

Petroleum (Refined)—To Decolorize.

Any of the bleaching agents known may be employed for this purpose; it is simply a question of dollars and cents and manipulation. Bleaching powder, the cheapest material, is to be stirred into the oil in sufficient quantity, which depends, of course, on the amount of color to be destroyed, and a little hydrochloric acid mixed with it afterwards. With occasional stirring the mixture is allowed to rest for twenty-four hours, when the clear liquid is drawn into another tank, washed with water until no longer acid, and distilled. This will yield a colorless, limpid oil.

Pewter—Common.

Melt in a crucible 7 lbs. of tin, and when fused throw in 1 lb. of lead, 6 oz. of copper and 2 oz. of zinc. This combination of metals will form an alloy of great durability and tenacity; also of considerable lustre.

Pewter—Best.

The best sort of pewter consists of 100 parts of tin, and 17 of regulus of antimony.

Pewter—Hard.

Melt together 12 lbs of tin, 1 lb. of regulus of antimony, and 4 oz. of copper.

Pewter—To Clean.

Apply to the surface of the vessels a fine sand mixed with oil of tartar; then polish.

Piano—Hints About.

Dampness is very injurious to a pianoforte; it ought, therefore, to be placed in a dry place, and not exposed to draughts.

Keep your piano free from dust, and do not allow needles, pins, or bread to be placed upon it, especially if the key-board is exposed, as such articles are apt to get inside and produce a jarring or whizzing sound.

Do not load the top of the piano with books, music, etc., as the tone is thereby deadened.

Have your piano tuned about every three months; whether it is used or not the strain is always upon it, and if it is not kept up to concert pitch it will not stand in tune when required, which it will do if it be attended to regularly.

An upright instrument sounds better if placed a short distance from the wall; it is also less liable to injury from damp, and does not inflict dull and confused sounds upon your next-door neighbor.

When not in use keep the piano closed.

To make the polish look nice, rub it with an old silk handkerchief, being careful first of all to dust off any small particles, which otherwise are apt to scratch the surface.

Should any of the notes keep down when struck, it is a sign that there is damp somewhere, which has caused the small joints upon which the key works to swell.

Pictures for Magic Lanterns —Novel Style.

A sheet of gelatine, such as is used for tracing, is securely fixed over an engraving and with a sharp steel

point (made by grinding down the end of a small round file) the lines of the original are traced pretty deeply on the transparent substance. Lead-pencil or crayon-dust is then lightly rubbed in with the finger, and the picture is at once ready for use. The effect of these drawings in the lantern is said to be excellent.

Picture Frames.

In the framing of prints or water-color drawings, with a margin between the subject and the frame, we have seen the most unsymmetrical widths taken by caprice both for margin and frame. You can frame prints with harmonic proportions by the following rule: 1. Find a harmonic third to the length and the breadth of the print, and take it for the collective widths of the margin and frame. 2. Divide this space harmonically, so that the whole space, and the greater and smaller part of it, are three successive harmonic terms, and you have then taken the less part for the margin, and the greater part for the frame. A practical rule for dividing the collective width of the margin and frame into two harmonic parts is to multiply the whole width by the decimal .5858 and the product will be the width of the frame, and the rest the width of the margin, or vice versa. In case, however, one will insist on a very wide margin, he may take twice instead of once the harmonic third for the width of the margin and frame.

Picture Frames—To Prevent Flies from Injuring.

Boil three or four onions in a pint of water: then with a gilding brush go over your glasses and frames, and the flies will not alight on the article so washed. This may be used without apprehension, as it will not do the least injury to the frames.

Pictures—How to Hang.

The worst position in which a painting can be placed is directly opposite a window, as its surface so reflects the light that the object cannot be seen except from a side view. The picture ought to be hung so as to allow the light from the window to fall upon it from the same side in which the artist saw or imagined the picture to appear in nature; that is to say, the shadows in the picture ought to be on that side of the objects which is opposite to the direction from which the light comes: for example, in the case of a tree or house, if the window is on the right hand the shadows on the picture must be towards the left hand of the observer, as if projected from the right side to the left, as would be the case in nature if the light fell upon the objects perceived.

Pigs—How to Select Good.

The desirable points in a good pig are: Sufficient depth and length of body to insure suitable lateral expansion; broad on the loin and breast; legs no longer than, when fully fat, to just prevent the animal's belly from trailing on the ground when walking; feet firm and sound; the toes to press straightly on the ground and lie well together; the claws should be healthy, upright and even. The head small, the snout short, forehead somewhat convex and curving upward; the ears small but pendulous, somewhat inclining forward; light and thin. His carriage should be lively, sprightly, rather than dull and heavy; a lively bright eye, and he should carry his head up rather than down. Those colors which are characteristic of the best breed are to be chosen. The thinner the hair of a black pig the nearer allied it is to the Neapolitan, and consequently the less hardy, either to endure the cold and change of seasons, or to resist disease. White color indicates a con-

nection with the Chinese; mixed colors show marks of particular breeds; thus, if light or sandy, or red with black marks, the Berkshire blood is detected, etc.

Pigs—Blind Staggers in.

The cause of this disease is too high feeding. The cure is to withhold their food for a day or two, and feed them on very small quantities of sulphur and charcoal.

Pigs—Lice on.

Procure some leaf tobacco, and boil it to a strong amber in water enough to float it; mix in, while hot, enough of lard or refuse grease to make a thin salve; rub on the pigs or hogs troubled, and in less than 24 hours they will not have a louse on them, if thoroughly applied. Or get some crude petroleum oil and apply once a month, and no more lice will appear.

Pigs—Mange.

Mange is a disease caused by the burrowing and breeding of a minute insect in the skin, like the itch in man, scab in sheep, etc. If pigs which have it, or have been exposed to it, are washed with earbolie or cresylie soap, and their pens and bedding sprinkled with the same a cure is easily effected. More than one application might be required, and it would be best to wash the animals at the interval of a week.

Pimples.

Several different forms of eruptions are popularly termed pimples, though varying considerably in their character. As this article is designed for general reading, we shall adopt the popular appellation.

Dry Pimples consist of little elevations sometimes showing themselves on the surface, at other times perceptible only to the touch. They usually itch considerably, and when scratched to allay the feeling, are liable to be converted into disagreeable sores. We

know of no better remedy for these than a solution of borax in warm water, afterward allowed to cool. This applied plentifully as a wash or lotion will soothe the irritation.

Mattery Pimples are distinguished from the above by containing an opaque, yellowish fluid (pus). The little bubbles attain their full size in the course of two or three days, and either dry up without breaking or more frequently burst and then dry, forming a hard crust. For these are recommended a lotion composed of alcohol one part and five or six parts of soft water, to which a very little distilled vinegar is added. The crusts may be removed by warm water.

Watery Pimples consist of little vesicles or bladders filled with transparent liquid. No local treatment is usually available.

In the treatment of pimples, attention should be directed to improving the general health, promoting activity of the skin by exercise, frequent bathing of the whole body, and the avoidance of pastry, rich gravies and similar articles of food. Pimples generally afflict persons of sedentary habits, especially those confined in close, impure atmospheres. Where the skin becomes torpid, the great amount of waste usually passing off in the form of insensible perspiration gathers at the openings of the pores and clogs them. If bathing is not frequent, this layer of dead matter forms a coating through which the insensible perspiration (or waste usually passed from the skin) is prevented an egress and collects in pimples. It is probable that the reason for the face being most frequently the part disfigured, is because it is more frequently washed, the waste matter seeks an outlet wherever the skin can act, and so too much accumulates here to be thrown off easily. The use of warm water for daily ablutions

promotes this attraction of waste matter to the spot. By washing the face in very cold water and bathing the body frequently in warm water the order is reversed, and the excess of the face is drawn to other parts and diffused over a large surface, passes off naturally and without any marked signs.

Smashing pimples, or squeezing out "flesh worms," only tends to an increase of the trouble. If a large pimple seems inclined to form, the best way is to let it come fully to a head, then prick it with a needle and gently press out the matter, breaking the skin as little as possible. This will help to clear the face. Borax water is a simple, harmless, and often beneficial application to pimples and inflamed or irritated skin, and in cases of chaps, sunburn, or harshness of the skin.

Pinchbeck.

Put into a crucible 5 oz. of pure copper; when it is in a state of fusion add 1 oz. of zinc. These metals combine, forming an alloy not unlike jeweler's gold; pour it into a mold of any shape. This alloy is used for inferior jewelry.

Some use only half this quantity of zinc, in which proportion the alloy is more easily worked, especially in the making of jewelry.

Another.—Melt together 1 ounce of brass with $1\frac{1}{2}$ or 2 oz. of copper, fused under a coat of charcoal dust.

Plants—The Care of.

The health of plants, like that of children, depends largely upon the attention they get, especially during the winter season.

Delicate plants should be housed before frosts become severe, and it is September generally that they are removed to the greenhouses or conservatories. It is a good rule, after they have been removed to their winter quarters, to see that one plant does

not touch another, because not only do blights pass from one leaf to another, but coming in constant contact, the leaves become shriveled and sometimes withered.

Once a week there should be a "house-cleaning" in the nursery, when the stands should be dusted and the leaves washed or given attention.

Plenty of fresh air is as necessary to a plant's health as to a child's, and it is a great mistake to keep the conservatory constantly closed during the winter. Fresh air should now and then be allowed to sweep through the room.

With regard to temperature, an even warmth of from 60 to 70 degrees, with sunshine in the daytime, going down to 45 degrees (but not lower) on cold nights, will carry most plants safely through the winter, and it is not desirable to keep up great heat in the conservatory at any time; for plants, when in flower, last longer in a moderate warmth, and are less likely to feel the severe cold which sometimes sets in than when unduly coddled.

Every faded flower and yellow leaf should be removed at once from the plants, keeping everything fresh and clean; not only do the plants look the better for this little attention, but they will bloom longer and become less exhausted in doing so than when they are allowed to seed.

Plants (House), Lice on—To Destroy.

Take some of the common fine-cut smoking tobacco, strong, and sprinkle it over the top of the earth about the plant, and keep the plant well watered. The strength of the tobacco now passes through the earth and about the roots, and is just as sure to kill all creeping things as it is used and is a great benefit to the plant. These worms, etc., die, and with the strength of the tobacco form a most valuable manure for the

plant, and those using it will find that the plant will soon show much more vigor and begin to grow very fast.

Plants—Boxes for Starting.

There is nothing better for this purpose than paper boxes. To make these boxes, cut strips of thick paper about 6 inches wide and 17 long; paste the ends together, lapping an inch, which will make a circle 16 inches in circumference; then press the sides of the circle together flat, and double once, making a book of four uncut leaves; now open with the fingers, pinch down the corners properly, and a bottomless box 4 inches square is the result. Place as many of these as are needed close together in a wooden box, fill with earth, and sow seeds or prick out the plants. It is best not to have the box that holds the paper ones so high by 2 inches as they are, as the paper then does not decay so rapidly as in higher boxes, and holds the earth together better in transplanting.

Plants (Outdoor)—Labels for.

A convenient method of preparing outdoor labels for plants, capable of resisting weather, consists in first cutting them out of smooth pasteboard and writing upon them whatever may be desired in ordinary ink. When this is dry they are immersed in linseed oil, or, what is still better, linseed-oil varnish, until they are completely permeated by the liquid; after which they are hung in the open air upon threads to dry; they become like iron, and resist wet for a long time, and are more durable than slips of metal.

Plaster—Adhesive.

Take of common, or litharge plaster, 5 parts, white resin, 1 part. Melt them together, and spread the liquid compound thin on strips of linen by means of a spatula or table knife. This plaster is very adhesive, and is used for keeping on other dressings, etc.

Plaster of Paris.

Plaster of Paris is composed of anhydrous (without water) sulphate of lime; it is chiefly used for taking models and casts, uniting slabs of marble and alabaster. It should be mixed with water to the consistence of thick cream, and then applied; it hardens rapidly. Plaster of Paris may be considerably strengthened by being mixed with thin glue, or a solution of size and gum instead of water. When mixed with iron filings to the proportion of one-fifth the whole weight, plaster of Paris may be used in uniting iron.

Plaster Ornaments—Composition for.

Molds for casting plaster ornaments for ceilings may be made of composition composed in the following proportion: Resin, $\frac{3}{4}$ of a lb.; tallow, $\frac{1}{2}$ a lb.; beeswax, 6 oz. The object to be copied is first oiled, and this composition poured upon it until there is enough when cooled to make a strong mold. Or a mold can be made from plaster-of-Paris itself, by pouring it upon the object to be copied. If the latter be wood or metal it should be well oiled, but if it is also made of plaster-of-Paris it should be moistened with water, but no drops must stand on it. The plaster-of-Paris may be colored, while being mixed, with oxide of copper (dissolved) for blue; with ashes for pearl gray; with the various ochres for red, yellow and green. Red and yellow oxides of lead are used for red and yellow colors. Real mastic is made of say 14 parts, by measure, of clean, sharp sand; 14 parts, by measure, of pulverized limestone or marble dust, of litharge one-fourteenth in weight of the united weights of the sand and stone, and one-seventh of the whole weight of the three in lin-

seed oil. The sand, marble dust, or limestone powder, are well dried before mixing. Then mixed into a mortar or plaster and applied to an oiled surface.

Plate or Plated Ware—How to Clean.

In the first place every particle of grease must be removed by means of a thorough hot soap suds in which is dissolved a small bit of cooking soda, it must then be thoroughly rinsed in clear warm water, and wiped with a dry soft towel or a piece of wash leather. It may then be rubbed with fine whiting with a bit of flannel or chamois skin; if there are stains on the plate the whiting should be rubbed on mixed with water or a little sweet oil and allowed to remain several hours, but if the silver is merely tarnished it will be sufficient to give it a dry polish by using the whiting of very fine plate powder, dry, and polishing by a soft wash leather, cleansing the chased portions with a soft bristle brush.

All plate and silver in common use should be cleaned at least once a week, but too severe rubbing will soon wear out even the best plate.

Plate should be well protected in a dry closet or drawer; a box lined with flannel is the best article. The practice of leaving plate exposed on the side board is injurious to the plate, from the fact that there exists in the air a portion of sulphureted hydrogen gas, which turns the silver black.

The habit of melting off spermaceti from candle-sticks, by placing them near the fire is also destructive; if moderately hot water will not remove the grease, a little alcohol will.

Plating and Gilding Without a Battery.

A very useful solution of silver or gold for plating or gilding without the aid of a battery may be made as follows: Take, say, 1 ounce of nitrate of silver, dissolved in 1 quart of distilled or rain water. When thoroughly dissolved, throw in a few crystals of hyposulphite of soda, which will at first form a brown precipitate, but which eventually becomes redissolved if sufficient hyposulphite has been employed. A slight excess of this salt must, however, be added. The solution thus formed may be used for coating small articles of steel, brass, or German silver, by simply dipping a sponge in the solution and rubbing it over the surface of the article to be coated. I have succeeded in coating steel very satisfactorily by this means, and have found the silver so firmly attached to the steel (when the solution has been carefully made) that it has been removed with considerable difficulty. A solution of gold may be made in the same way, and applied as described. A concentrated solution of either gold or silver thus made, may be used for coating parts of articles which have stripped or blistered, by applying it with a camel's hair pencil to the part, and touching the spot at the same time with a thin clean strip of zinc.

Plating on Iron and Steel.

Take two quarts of rain-water, dissolve two pounds cyanide of potassium, and filter. This solution is only for steel or iron. In order to plate steel or iron, dip it into pure sulphuric acid for one minute, then clean with pumice stone and brush; rinse, and hang in cyanide solution of potassium for three minutes, or until it becomes white; then

hang in silver solution until plated heavily enough.

Plated Metal—Test for.

A cold solution of bichromate of potassa in nitric acid is, according to Dr. Böttger, an excellent test for the genuineness of silver-plating on metals. The metallic surface to be tested is first of all cleaned with strong alcohol, in order to remove dirt, fatty matter, and especially any varnish. A drop of the test-fluid is then applied to the metallic surface by means of a glass rod, and immediately afterwards washed off with some cold water. If pure silver is present, there will appear a blood-red colored mark (chromate of silver). Upon German silver the test-liquid appears brown, but, after washing with water, the blood-red colored mark does not appear; the so-called Britannia metal is colored black; on platinum no action is visible; metallic surfaces coated with an amalgam of mercury yield a reddish speck, which, however, is entirely washed off by water; on lead and bismuth the test-fluid forms a yellow-colored precipitate; zinc and tin are both strongly acted upon by this test-liquid; the stain, as regards the former metal, is entirely removed by water, while, as regards the latter, the test-liquid is colored brownish, and addition of water produces a yellow precipitate which somewhat adheres to the tin.

Plows (Rusty)—To Clean.

Take a quart of water and pour slowly into it half a pint of sulphuric acid. (The mixture will become quite warm from chemical action, and this is the reason why the acid should be poured slowly into water, rather than the water into the acid.) Wash the mold-board (or any other iron that is

rusty) with this weak acid, and let it remain on the iron until it evaporates. Then wash it once more. The object is to give time for the acid to dissolve the rust. Then wash with water, and you will see where the worst rusty spots are. Apply some more acid, and rub those spots with a brick. The acid and the scouring will remove most of the rust. Then wash the mold-board thoroughly with water, to remove all the acid, and rub it dry. Brush it over with petroleum or other oil, and let it be until spring. When you go to plowing, take a bottle of the acid water to the field, and apply it frequently to any spots of rust that may remain. The acid and the scouring of the earth will soon make it very bright and smooth.

Plum—The.

The plum tree is hardy, and requires but little attention; it bears abundantly, and may be considered a sure crop when the soil suits. The best for it is stiff clay, which is not suitable to the habits of the curculio, the great enemy of the plum.

Hardy Varieties.—The Japanese plums differ amongst themselves greatly in hardiness. The Kelsey is adapted only to the states of Virginia and to the warmer parts of the Pacific coast, but other varieties are fully hardy in parts of Connecticut, Ontario, New York, and Iowa.

The varieties now known to be hardy in the plum regions of New York are Burbank, Abundance, Willard, Ogon, Satsuma, Chabot, Yosebe, and Berger; and others give promise of being as hardy as these.

Time of ripening.—The period of ripening of the various kinds extends over a long season, running from the middle of July to the middle of September. The same variety does not always appear to ripen at

the same period in successive years. This is especially true of the Kelsey, which sometimes varies through a period of three months. The earliest market variety which has been tested appears to be Willard, followed closely by Ogon, then Abundance and Berckmans, and Burbank still later. Kelsey is generally the latest of all the varieties, but does best in the South.

Lasting Qualities.—Most of the Japanese plums keep for several days, and some of them even for two weeks, after they are ripe. Satsuma is one of the best keepers known in the North.

The larger part of the varieties are red with deep yellow flesh, and the Satsuma, and a few varieties less known, have deep red flesh. There are only four well-known yellow varieties. There are eight freestones, as follows: Ogon, Willard, Kelsey, Berger, Maru, Munson, Normand, Yosebe.

The Varieties which can be most confidently recommended at the present time are Abundance, Burbank, Willard, Kerr, Berckmans, Maru, Red Negate, Chabot, Satsuma, and, perhaps, Ogon. Kelsey is recommended for the South.

The chief weaknesses of the Japanese plums are too early bloom of some varieties and liability to the fruit-rot fungus. Amongst their advantages are partial immunity from black-knot and leaf-blight, and often a partial freedom from curculio injury.

Cultivating Plums.—The ground should be manured and kept well cultivated, as the plum, especially when young, is sensitive to the effects of the weeds and grass of neglected culture.

Plumb Rule—To Make.

Plane the face straight and out of wind. Plane one edge straight and square with the face. Run a gage mark to the proper width; plane to the mark exactly; gage to

a thickness on each edge; plane to the marks. Run a guagemark through the center for the plumb or cord line. Saw hole in the bottom for the bob. Cut a saw cut at the top of the line for the cord; and a slanting saw cut each side of the center one, to fasten the cord into. Geometrically it is correct to "strike a circle at each end, and to plane so as to touch the sides of the circle"; practically, it is next to impossible to touch the circle exactly and have the rule exactly straight between them.

Pointer Dog—Characteristics of a Well Bred.

The head should be broad at the tip, long and tapering, the poll rising to a point; nose open and large; ears tolerably long, slightly erect and falling between the neck and jaw bone, slightly pointed at the top; eyes clear and bright; neck and head set on straight; chest broad and deep; legs and arms strong, muscular and straight; elbows well in; feet small and hard; body not over long, and well ribbed up; loins broad at the top, but thin downwards; hind quarters broad; hind legs strong and large; tail long, fine and tapering; hair short, sleek and close.

Polish (French)—For Boots, Shoes and Harness.

Take two pints of the best vinegar and one pint of soft water; stir into the mixture a quarter of a pound of glue broken fine, half a pound of logwood chips, a quarter of an ounce of finely-powdered indigo, a quarter of an ounce of the best soft soap, and a quarter of an ounce of isinglass. Boil for ten minutes or longer; then strain the liquid, bottle and cork. When cold it is fit for use.

Remove the dirt from the shoes, etc., with a sponge and water. Then

lay on the polish with a clean sponge. Should it prove too thick, hold it near the fire to warm a little, and the heat will liquefy it sufficiently.

Polishes—French.

Naphtha Polish.—Shellac, three pounds; wood naphtha, three quarts. Put the shellac in the naphtha and let it dissolve.

Spirit Polish.—Shellac, two pounds; powdered mastic and sandarac, of each one ounce, copal varnish, half-a-pint; spirits of wine, one gallon. Digest in the cold till dissolved.

Polishing Powder—Jewelers'.

Jewelers and others who have use for jeweler's rouge as a polish for glass or metal will find the following a perfect recipe: Dissolve any quantity of good green vitriol (sulphate of iron) in enough water not to leave a sediment. When well dissolved, drop into the water small lumps of carbonate of ammonia until the iron falls to the bottom in the form of fine powder (the peroxide of iron). Keep on dropping in ammonia until no more iron falls. Let the water stand awhile until it clears, then pour it off. Turn the iron powder between two sheets of blotting paper, and press it to get it as dry as possible. Then turn it into an old teacup or porcelain crucible and stand it over a clear good fire until the iron is just red hot (in the dark) and no more. When this is done you have the best polishing powder known in the trade, at a very trifling cost.

Polishing Wood Carving.

Take a piece of wadding, soft and pliable, and drop a few drops of white or transparent polish, or French polish, according to the color of the wood. Now wrap the wetted wadding up in a piece of old linen, forming it into a pad; hold the pad by the

surplus linen; touch the pad with one or two drops of linseed oil. Now pass the pad gently over the parts to be polished, working it round in small circles, occasionally re-wetting the wadding in polish, and the pad with a drop or so of oil. The object of the oil is merely to cause the pad to run over the wood easily without sticking, therefore as little as possible should be used, as it tends to deaden the polish to a certain extent. Where a carving is to be polished after having been varnished, the same process is necessary; but it can only be applied to the plainer portions of the work. Plain surfaces must be made perfectly smooth with sand-paper before polishing, as every scratch or mark will show twice as badly after the operation. When the polish is first rubbed on the wood, it is called the "bodying-in;" it will sink into the wood and not give much glaze. It must, when dry, have another body rubbed on, and a third generally finishes it; but if not, the operations must be repeated. Just before the task is completed, greasy smears will show themselves; these will disappear by continuing the gentle rubbing without oiling the pad. You should now be able to see your face in the wood.

Population—Theory of.

Population is limited by the means of existence, and increases in a geometrical, while the means of existence increase only in an arithmetical ratio. The checks on this increase of population are preventive and positive—the former including all causes which prevent births, and the latter including all those which cut off the extra lives. Moral restraint is a very small factor, vice and misery are very large factors in thus checking population; but the former becomes more and more im-

portant and influential as the standard of comfort is raised.

Population of the World.

The population of the world is estimated at 1,479,000,000, scattered over an area of about 52,300,000 square miles. It is calculated that nearly 2,000,000 square miles of the land-surface are uninhabited, and that 5,000,000 more are not definitely occupied. The 75 definite states return their definitely occupied areas at an aggregate of 45,000,000 miles, of which 40 million are monopolized by 20 states. Asia is much the most populous as well as the largest, having 826 million persons and 17 million square miles; Africa comes next in size—11½ million square miles; but Europe is next in population—358 million. America is about 8 million square miles and has 122 million people. Australia is 3½ million square miles and has 5 million people. Africa, in spite of its huge size, has only 168 million people; and Europe, with its large population, is only 3¼ million square miles. Out of the 1,479,000,000 total population, 835 million are heathens, 214 million Mohammedans, and 8 million Jews. Of the 422 million Christians, 216 million are Roman Catholic, 130 million Protestants, 76 Greek Church.

Postage—Rates of.

Postal Cards, 1 cent each, go without further charge to all parts of the United States and Canada. Cards for foreign countries (within the Postal Union) 2 cents each. Postal cards are unmailable with any writing or printing on the address side, except the direction, or with anything pasted upon or attached to them.

Local, or "Drop" Letters, that are for the city or town where deposited, 2 cents where the carrier system

is adopted, and 1 cent where there is no carrier system.

Letters to all parts of the United States, Cuba, Porto Rico, the Philippines, Canada and Mexico, 2 cents for each ounce or fraction thereof.

First Class.—Letters and all other written matter, whether sealed or unsealed, and all other matter, sealed, nailed, sewed, or fastened in any manner so that it cannot be easily examined, 2 cents for each ounce or fraction thereof.

Second Class.—Only for publishers and news agents, 1 cent per pound.

Newspapers and Periodicals (regular publications) can be mailed by the public at the rate of 1 cent for each 4 ounces or fraction thereof.

Third Class.—Printed matter in unsealed wrappers only (all matter enclosed in notched envelopes must pay letter rates), 1 cent for each 2 ounces or fraction thereof, which must be fully prepaid. This includes books, circulars, chromos, engravings, handbills, lithographs, music, pamphlets, proof-sheets and manuscript accompanying the same, reproductions by the electric pen, hectograph, metallograph, papyrograph, and, in short, any reproduction upon paper, by any process except handwriting, the copying press, typewriter and the neostyle process. Limit of weight 4 lbs., except for a single book, which may weigh more.

Fourth Class.—All mailable matter not included in the three preceding classes which is so prepared for mailing as to be easily withdrawn from the wrapper and examined, 1 cent per ounce or fraction thereof. Limit of weight 4 lbs. Full prepayment compulsory.

Money Orders.

The fees for the issue of Domestic Money Orders are as follows:

For orders for sums not exceeding \$ 2.50,	3c.
Over \$ 2.50 and " 5.00,	5c.
" 5.00 " " 10.00,	8c.
" 10.00 " " 20.00,	10c.
" 20.00 " " 30.00,	12c.
" 30.00 " " 40.00,	15c.
" 40.00 " " 50.00,	18c.
" 50.00 " " 60.00,	20c.
" 60.00 " " 75.00,	25c.
" 75.00 " " 100.00,	30c.

Registration.

All kinds of postal matter, except second class matter, can be registered at the rate of eight cents for each package, in addition to the regular rates of postage, to be fully prepaid by stamps. Each package must bear the name and address of the sender, and a receipt will be returned from the person to whom addressed. Mail matter can be registered at all post offices in the United States.

Experience has proven that the registration of a letter or parcel is one of the safest means known for the transmission of valuable articles, there having been a total loss during the past year of but 338 articles, out of a total of sixteen million letters and parcels registered, and if the article is prepaid at first class rates, the government will pay to the sender or owner, in case of its loss, full value, not exceeding Ten Dollars in any one case.

Free Delivery.

The free delivery of letters and other mail matter at the residences of the people desiring it is required by law in every city of 50,000 or more population, and may be established at every place containing not less than 5,000 inhabitants.

Postage—Foreign.

The rates for letters are for the half ounce or fraction thereof and those for newspapers for 2 ounces or fraction thereof:—

To Great Britain and Ireland, France, Spain, all parts of Germany, including Austria, Denmark, Switzerland, Italy, Russia, Norway,

Sweden, Turkey (European and Asiatic), Egypt, Australia (all parts): letters, 5 cents; newspapers, 1 cent for each two ounces or fraction thereof.

China: letters via San Francisco, 5 cents; via Brindisi, 13 cents; 4 cents for each paper not weighing over four ounces. British India, Italian mail; letters, 5 cents; newspapers, 1 cent for two ounces. Japan: letters, via San Francisco, 5 cents; newspapers, 1 cent for two ounces.

Potatoes—Earthing Up.

It has been demonstrated that earthing up potatoes diminishes the product, and retards the ripening of the tubers. Long experiments have fully proved this fact—that hilling up the potato will reduce the crop one-fourth.

Potatoes, Raising—Under Straw.

We give an experiment in raising potatoes under straw, by a noted agriculturist: "I fitted the ground as for planting in the old way, by marking rows one way, three feet apart, and dropped the potatoes on the mark from eighteen inches to two feet apart, covering them slightly with soil. I then covered to about the depth of ten inches with old straw, and did nothing more with them. When the crop was ripe I raked off the straw, and raked out the potatoes, which were mostly on the surface, looking very nice, fresh and large. The result was, I had at the rate of one hundred and eighty-six bushels per acre; while the yield from those planted the old way in drills, and cultivated on ground by the side of them, was only seventy-five bushels per acre, which was rather small for this section, owing to the dry season. The soil is a sandy loam."

Potatoes—Sweet.

The first week in June is quite early enough to set out sweet potatoes in northern localities. Where but a very few are grown, it is much easier and cheaper to buy the plants than it is to start them. They carry readily by express. In preparing the soil, put upon the level surface a strip of fine manure a foot wide, and turn two furrows over it to form a ridge. Dress up the ridge with the spade, and set the plants about fifteen inches apart. Unless the soil is moist, water the holes before setting the plants, which should be set well down, so that the stalk of the first leaf is covered. Press the soil firmly around the plants—much of the success will depend upon this. Should the tops wilt and dry up, a new shoot will spring up if the plant has been set deep enough. The sides of the ridges should be kept free of weeds by the proper use of the rake. The vines will soon get so large as to smother most of the weeds.

Potato Rot—Barnet's Certain Preventive for the.

Sow unleached ashes over the field once a week for six or seven weeks, commencing soon after the second hoeing. Apply two or three bushels to the acre, using care to dust the tops well.

Potato Bug (Colorado)—To Destroy.

A great many preparations have been invented to destroy this marauder on the potato fields. The principal ingredient in all is the powdered paint known as Paris green. Its poisonous effect upon the plant is obviated by the admixture of other ingredients. The Paris green, according to price, is more or less pure. If unadulterated, it should be mixed with four, five, or six times the quantity of meal, flour, ashes, calcined plaster and lime. The more it can be

diluted, without destroying its efficacy so much the less expensive it will be, and the less injurious to the vines, and also the less dangerous to the operator.

Pots (Iron)—To Mend.

Mix finely sifted limë with some white of an egg, till a thin kind of paste is formed, then add some iron filings. Apply this to the fracture, and the vessel will be found nearly as sound as ever.

Poultry Breeding.

Poultry breeding is one of the great industries of the United States, although it has not attracted the attention that should have been given it.

It is estimated by competent authorities that the poultry industry of this country amounts to more than \$300,000,000 every year, two-thirds of which is derived from the production of eggs alone.

Notwithstanding this, we have never yet produced as many eggs as we have consumed, and importations are made every year from foreign countries.

The principal difficulty with poultry breeding in this country is the careless system of breeding that prevails. While most farmers insist on having well-bred animals among their live stock, they pay but very little attention to poultry. For this reason the average production of eggs in this country was, at the time of the last census, only about three dozen eggs for each hen, when it should have been at least ten dozen.

There is just as good argument for keeping well-bred poultry as for keeping well-bred stock of any kind. Pure-bred poultry is not high priced and it is much more profitable than mongrel stock of no particular breeding.

Pure-bred poultry produces a larger number of eggs, makes a larger growth on a given amount of feed and uses the

feed it consumes to a better purpose than mongrel stock does.

The American Poultry Association, which determines all questions relating to pure-bred poultry, recognizes twenty-six distinct breeds of chickens, which are subdivided into eighty-six varieties. There are nine breeds of ducks, seven breeds of geese and six breeds of turkeys.

Many of these breeds and varieties are not common and some of them are very rare. Half a dozen breeds of chickens, two breeds of ducks, two breeds of geese and two of turkeys, comprise nine-tenths of all the fowls bred in this country.

Of chickens it is entirely probable that one-half in the country are made up of Plymouth Rocks or their crosses, the Plymouth Rock being the most popular breed in the country. This breed is divided into Barred, White, and Buff varieties, all of equal merit, the color being a mere matter of choice.

The second in point of numbers is probably the Leghorn family, of which there are White, Brown, Buff and Silver Duckwing varieties, the last being very rare.

Light Brahmas are quite numerous and have many merits, and Wyandottes, which come in the White, Black, Buff and Silver-laced varieties are becoming quite popular.

The Hamburgs, Cochins, Games, Spanish, Minorcas, Andalusians and other breeds recognized by the American Poultry Association are not very common, although not at all rare.

Dorkings, La Fleche, Houdans, Creve Couers, Silkies, Sultans, Sumatras, etc., are rarely seen, the Houdans being most numerous of these.

Good Care.—Success in poultry breeding depends on good care. If the fowls are given a warm house

which is kept clean and are provided with plenty of light, and in connection with the comfortable quarters are properly fed, they are very profitable, and a great many people make a living from poultry-keeping on a small capital and limited space.

Poultry does not do well where the land is wet or even damp a considerable portion of the year. To this statement we except ducks and geese, as they do best where they can have plenty of water, but at the same time they want a dry place in which to sleep.

Poultry—Cheap Buildings for.

Poultry may be kept in very cheap buildings, in which they excel most live stock, as with the domestic animals the furnishing of shelter is one of the considerable items of expense.

Poultry—Bones, to Pulverize for Fowls.

Put the bones in a stove and allow them to burn white, when they can then be easily pulverized; then mix with corn meal and feed twice a day.

Poultry—Feeding of.

On the proper feeding of poultry depends success. Most farmers feed too much corn for the good of the poultry, as corn is a very fattening food and fat hens do not lay well.

Poultry—Killing and Dressing.

As much, if not more, depends on the manner of killing poultry as in the dressing to have it look fit for market. Too much caution cannot be used in this branch of business. One mode of killing fowls (instead of wringing the necks, which we deprecate), is to cut their heads off with a single blow of a sharp axe, hang them up by the legs and allow them to bleed freely, and pluck their feathers immediately—while yet warm. The French mode, which is highly commended, we think far the best, as it causes instant death, with-

out pain or disfigurement, and is simply done by opening the beak of the fowl, and with a sharp pointed and narrow-bladed knife, make an incision at the back of the throat which will divide the vertebræ, and cause immediate death, after which hang the fowl up by the legs till the bleeding ceases, and pick it while warm, if you desire the feathers to be removed. With a little care the skin of the fowl does not become as torn and ragged as it does in the old-fashioned way of scalding. Another thing, the flesh presents a better and more natural appearance when not scalded.

Poultry—Lice and Other Vermin.

Lice and other vermin on fowl may be treated by making their roosts perfectly clean with hot water and soap-suds, and applying afterwards spirits of turpentine (to the roosts). The whole of the building which they occupy should be kept scrupulously clean. Another method is to strew small branches or sprays of cedar about the hennery. This, also, will be found very effective.

Poultry for Market.

When fowls are killed before being sent to market, it is best not to pack them as soon as they are plucked. It is best to let poultry hang at least 24 hours after being picked before packing, so as to allow the animal heat to entirely pass off. After picking, wash off the blood-stains with a cloth and warm water in a careful manner, for if any are left to harden and become dry, their removal will prove very troublesome.

Poultry—Roup in.

Symptoms.—The symptoms of roup are at first identical with those of a severe catarrh; the discharge from the nostrils, however, soon loses its transparent character, becoming more or less opaque, and of a very peculiar and offensive odor; froth appears in the inner corner of the eyes, and the lids swell; in severe cases the eyeball is en-

tirely concealed; the nostrils are closed by the discharge drying around them. and the eyelids are agglutinated together; the diseased secretion accumulates within to a great extent, consequently the sides of the face swell to an extreme degree, and the bird, unable to see, or feed itself, suffers from great depression and sinks rapidly. With respect to the communication of this disease, my experiments prove that it is exceedingly contagious. It is frequently communicated by fowls drinking out of the same vessel, as the discharge from the nostrils of the sick bird contaminates the water as it drinks. No common fowl is worth bothering with after the eyes swell badly; before that they may be cured with tolerable ease. The mouth, throat, eyes and nostrils should be washed out clean, and sponged with strong chloride of lime water, or, what is better, Labarague's solution, chlorinated soda, and the whole flock, but the ailing ones particularly, should have the heartiest diet—iron in their water, soft feed well peppered, and meat of some kind.

Powder, Pearl—For the Complexion.

Take pearl or bismuth white and French chalk, equal parts. Reduce them to a fine powder, and sift through lawn.

Powder—Rose Face.

Wheat starch, 7 lbs.; rose pink, 1 drachm; otto of rose, 2 drachms, otto of santal 2 drachms.

Preserving Animals.

A mixture of equal parts of good commercial glycerine and water, to every gallon of which is added one ounce of the crystals of carbolic acid, constitutes a good preserving liquid for all animal substances. The use of pure glycerine, with about one-half pint of alcohol, and half an ounce of carbolic acid added to each gallon,

make an excellent mixture for preserving the tissues of soft animals, where it is important to preserve the color as well as the tissues.

Prints and Printed Books—To Bleach.

Simple immersion in chlorine gas, letting the article remain in it a longer or shorter space of time, according to the strength of the liquor, will be sufficient to whiten an engraving. If it is required to whiten the paper of a bound book, as it is necessary that all the leaves should be acted on by the gas, care must be taken to open the book well, and to make the boards rest on the edge of the vessel, in such a manner that the paper alone shall be dipped in the gas. The leaves must be separated from each other, in order that they may be equally acted on on both sides. Chlorine water, freshly made, will answer instead of the gas.

Printed Sheets—To Clean.

A method recommended by a foreign contemporary for cleaning printed matter and engravings consists in fastening the sheets to a board by broad-headed tacks, and washing it with clean water, to which a slight percentage of carbonate of ammonia has been added. This process must be conducted very carefully with a soft brush. The paper is then to be rinsed off with water, and the operation completed on the back side as soon as it is dried. It is then to be moistened with water acidulated with pure wine vinegar, and again washed with water, to which a little chloride of lime has been added. Finally, it is washed off again and dried in the air by sunlight. In this way it becomes extremely white without any injury to the impression. Some valuable engravings have, it is said, been completely restored by this method.

Printing Rollers.

These are made of treacle and glue, with sometimes a little Paris white, etc. The proportions are about $\frac{1}{2}$ lb. of glue to $1\frac{1}{4}$ lb. of treacle; the glue is broken to pieces, soaked for 24 hours in sufficient water, then melted with the treacle, and cast into a mold previously oiled. On removing the composition it forms a cylinder without a seam, elastic, like India rubber, yet sufficiently soft to ink the type without injuring them. When it gets hard; which happens in two to four months, according to the weather, etc., it is necessary to remelt it, adding a little more treacle. Used to ink the type for letter press. If the composition is too hard, the ink does not spread evenly; if too soft, pieces are torn away from the roller. When the printing is finished, the roller is rubbed over a sink stone with cold water, which dissolves a little of the external coat, and so leaves it clear of ink.

Pronunciation.

To acquire a good knowledge of pronunciation, it is advisable to listen attentively to the examples given by good speakers, and by educated persons. We learn the pronunciation of words to a great extent by imitation, just as birds acquire the notes of other birds which may be near them

Pronunciation—Rules of.

C before a, o, and u, and in some other situations, is a close articulation, like k. Before e, i, and y, c is precisely equivalent to s in same, this; as in cedar, civil, cypress, capacity.

E final indicates that the preceding vowel is long; as in hate, mete, sire, robe, lyre, abate, recede, invite, remote, intrude.

E final indicates that e preceding has the sound of s; as in lace, lance; and that g preceding has the sound of j, as in charge, page, challenge.

E final, in English words proper,

never forms a syllable, and in the most-used words, in the terminating unaccented syllable it is silent. Thus, motive, genuine, examine, granite, are pronounced *motiv*, *genuin*, *examin*, *granit*.

E final, in a few words of foreign origin, forms a syllable; as *syncope*, *simile*.

E final is silent after l in the following terminations,—*ble*, *cle*, *dle*, *fle*, *gle*, *kle*, *ple*, *tle*, *zle*; as in *able*, *manacle*, *cradle*, *ruffle*, *mangle*, *wrinkle*, *supple*, *rattle*, *puzzle*, which are pronounced *a'bl*, *mana'cl*, *cra'dl*, *ruf'fl*, *man'pl*, *wrin'kl*, *sup'pl*, *puz'zl*.

E is usually silent in the termination *en*; as in *token*, *broken*; pronounced *tokn*, *brokn*.

OUS, in the termination of adjectives and their derivatives, is pronounced *us*; as in *gracious*, *pious*, *pompously*.

CE, CI, TI, before a vowel, have the sound of *sh*; as in *cetaceous*, *gracious*, *motion*, *partial*, *ingrati^ate*; pronounced *cetashus*, *grashus*, *moshun*, *parshal*, *ingrashiate*.

SI, after an accented vowel, is pronounced like *zh*; as in *Ephesian*, *confusion*; pronounced *Ephez^hian*, *confuz^hion*.

When CI or TI precede similar combinations, as in pronunciation, negotiation, they should be pronounced *ce* instead of *she*, to prevent a repetition of the latter syllable; as *pronounceashun* instead of *pronun-sheashun*.

GH, both in the middle and at the end of words, is silent; as in *caught*, *bought*, *fright*, *nigh*, *sigh*; pronounced *caut*, *baut*, *frite*, *ni*, *si*. In the following exceptions, however, *gh* is pronounced as *f*:—*cough*, *chough*, *clough*, *enough*, *laugh*, *rough*, *slough*, *tough*, *trough*.

When WH begins a word, the aspirate *h* precedes *w* in pronunciation;

as in what, whiff, whale; pronounced hwat, hwiff, hwale, w having precisely the sound of oo, French ou. In the following words w is silent:—who, whom, whose, whole,

H after r has no sound or use; as in rheum, rhyme; pronounced reum, ryme.

H should be sounded in the middle of words; as in forehead, abhor, behold, exhaust, inhabit, unhorse.

H should always be sounded except in the following words:—heir, honest, honor, hour, herb, and all their derivatives.

K and G are silent before n; as know, gnaw; pronounced no, naw.

W before r is silent; as in wring, wreath; pronounced ring, reath.

B after m is silent; as in dumb, numb; pronounced dum, num.

L before k is silent; as in balk, walk, talk; pronounced bauk, wauk, tauk.

PH has the sound of f; as in philosophy; pronounced filosofy.

NG has two sounds, one as in singer, the other as in fin-ger.

N after m, and closing a syllable, is silent; as in hymn, condemn.

P before s and t is mute; as in psalm, pseudo, ptarmigan; pronounced sam, sudo, tarmigan.

R has two sounds, one strong and vibrating, as at the beginning of words and syllables, such as robber, reckon, error; the other as at the terminations of words, or when succeeded by a consonant, as farmer, morn.

Before the letter R there is a slight sound of e between the vowel and the consonant. Thus, bare, parent, apparent, mere, mire, more, pure, pyre, are pronounced nearly baer, paerent, appaerent, me-er, mier, moer, puer, pyer. This pronunciation proceeds from the peculiar articulation of r, and it occasions a slight change of the

sound of a, which can only be learnt by the ear.

There are other rules of pronunciation affecting the combinations of vowels, &c.; but as they are more difficult to describe, and as they do not relate to errors which are commonly prevalent, we will not mention them here.

Prussian Blue—Turnbull's.

Ferrocyanide of potassium, 10 ounces; solution tersulphate of iron, 1 pint; water, 3 pints. Dissolve the ferrocyanide of potassium in two parts of water, and add the solution, gradually, to the solution of tersulphate of iron previously diluted with the remainder of the water, stirring the mixture during the addition. Then filter the liquid and wash the precipitate on the filter with boiling water until the washings pass nearly tasteless. Lastly, dry it, and rub it into fine powder.

Pumice Stone.

This is the lava of volcanoes, and is found floating upon the surface of the sea. It is a very useful article, which should be used much more than it is for rubbing down painted work.

Pump (Nautical)—Self-Acting.

Captain Leslie, in a voyage from North America to Stockholm, adopted an excellent mode of emptying water from his ship's hold, when the crew were insufficient to perform that duty. About ten or twelve feet above the pump he rigged out a spar, one end of which projected overboard, while the other was fastened as a lever to the machinery of the pump. To the end which projected overboard was suspended a water-butt, half full, but corked down, so that when the coming wave raised the butt-end, the other end depressed the piston of the pump; but at the retiring of the wave, this was reversed, for, by the weight of the butt, the piston

came up again, and with it the water. Thus, without the aid of the crew, the ship's hold was cleared of the water in a few hours.

A very useful hint may be taken from this plan; when a vessel has much water, and there are not hands enough to work the pumps, one pump might be arranged on this plan, and the other fully manned in the usual way.

Punctuation.

Punctuation teaches the method of placing Points, or Stops, in written or printed matter, in such a manner as to clearly indicate the pauses which would be made by the author if he were communicating his thoughts orally instead of by written signs; correct punctuation is essential to convey the meaning intended, and to give due force to such passages as the author may wish to impress upon the mind of the person to whom they are being communicated.

Points or Stops

Are as follows:—

Comma ,

Semicolon ;

Colon :

Period, or Full Point .

Apostrophe '

Hyphen -

Note of Interrogation ?

Note of Exclamation !

Parenthesis ()

Asterisk, or Star *

As these are all the points required in simple epistolary composition, we will confine our explanations to rules which should govern the use of them. The other Points, however, are the paragraph ¶; the section §; the dagger †; the double dagger ‡; the parallel ||; the brackets []; and some others. These, however, are quite unnecessary, except for elaborate works, in which they are chiefly used for notes or

marginal references. The dash— is sometimes used as a substitute for the brackets.

Point—Relative Duration of the Pauses for Each.

Comma	While you count	one.
Semicolon	“ “ “	two.
Colon	“ “ “	three.
Period	“ “ “	four.

This however, is not an infallible rule, because the duration of the pauses should be regulated by the degree of rapidity with which the matter is being read. In slow reading the duration of the pauses should be increased.

Points—Danger of Misplacing.

The misplacing of even so slight a point, or pause, as the comma, will often alter the meaning of a sentence. The contract made for lighting the town of Liverpool, during the year 1819, was made void by the misplacing of a comma in the advertisements, thus:—"The lamps at present are about 4,050, and have in general two spouts each, composed of not less than twenty threads of cotton." The contractor would have proceeded to furnish each lamp with the said twenty threads, but this being but half the usual quantity, the commissioners discovered that the difference arose from the comma following instead of preceding the word each. The parties agreed to annul the contract, and a new one was made.

Putty—Glazier's.

Whiting, 70 lbs.; boiled oil, 30 lbs.; water 2 gals. Mix. If too thin, add more whiting; if too thick add more oil.

Putty—To Soften.

To remove old putty from broken windows, dip a small brush in nitromuriatic acid or caustic soda, (concentrated lye) and with it anoint or paint over the dry putty that adheres

to the broken glass and frames of your windows; after an hour's interval, the putty will have become so soft as to be easily removable.

Putty—To Soften When Hard.

Break the putty in lumps of the size of a hen's egg, add a small portion of linseed oil, and water sufficient to cover the putty; boil this in an iron vessel for about ten minutes, and stir it when hot. The oil will mix with the putty. Then pour the water off, and it will be like fresh made.

Putty—To Remove.

For removing hard putty from a window sash, take a square piece of iron, make the same red hot, and run it along the putty till it gets soft. The putty will peel off without injuring the wood work. Concentrated lye, made of lime and alkali will affect the wood and make it rot quicker.

Putty Polishers.

Melt tin, rake off the dross as it is formed, and calcine this dross till it becomes whitish.

Another.—Melt tin, one ounce, with an equal weight, or one and a half ounce of lead, and then raise the heat so as to render the mixed metals red hot, when the tin will be immediately flung out in the state of putty. Both are very hard, used for polishing glass and japan work, and to color opaque white enamel.

Puzzles

Puzzles vary much. One of the simplest that we know is this:—

Take away half of thirteen and let eight remain.

Write XIII on a slate, or on a piece of paper—rub out the lower half of the figures, and VIII will remain.

Another.—From forty-five take forty-five and let forty-five remain. To do this write the figures 1 to 9 consecutively in a line, above them write the

same figures in reverse order 9 to 1, subtract the bottom line from the top line and the result as well as the other two lines will each total 45—thus:

$$987654321 = 45$$

$$123456789 = 45$$

$$864197532 = 45$$

Upon the principle of the square words, riddlers form Diagonals, Diamonds, Pyramids, Crosses, Stars, etc. These specimens will show their peculiarities:—

Puzzle, Oblique.—Malice, eight, a polemical meeting, a Scottish river, what I write with, a decided negative, the capital of Ireland. The initials downward name a celebrated musician.

Puzzle, Diagonal.—A direction, a singer, a little bird, a lady's ring, a sharp shaver. Read from left to right and right to left the centrals show two favorite novelists.

The following are the answers to these two puzzles, and afford good examples of their construction to any one who wishes to try his hand at their manufacture.

Oblique.	Diagonal.
REVENGE	LABEL
OCTAVE	TENOR
SYNOD	DIVER
SPEY	JEWEL
INK	RAZOR
NO	
I	

Puzzle—Diamond.

The head of a mouse, what the mouse lives in, the county of calves, the city of porcelain, a German town, an American stream, a royal county, a Nova Scotian town, Eve's temptation, our poor relation, myself. Centrals down and across, show a wide, wide, long river.

The construction of the Diamond Puzzle is exhibited in the following diagram, which is, at the same time the answer to it.

Diamond.

M
AIR
ESSEX
DRESDEN
GOTTINGEN
MISSISSIPPI
BERKSHIRE
HALIFAX
APPLE
APE
I

Puzzle—Boss; or the Fifteen.

Apparently simple, this game is really difficult of solution. Fifteen cubes of wood, severally marked from 1 to 15, are placed indifferently in a box made to hold sixteen; thus—

9	11	3	7
8	14	10	15
6	12	13	2
5	1	4	

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	

The puzzle consists in sliding the cubes from square to square, without lifting them or removing them from the box, until they are placed in their natural order. It is easy enough to move the squares up to 12; but to get the last three into order is often a puzzle indeed. If the figures fall in either of the following positions—13, 15, 14; 14, 13, 15; or 15, 14, 13—the problem is unsolvable; it follows, therefore, that the last row must be

either 14, 15, 13; or 15, 13, 14. If you get the cubes into either of these positions, you can easily bring them right; but if you cannot, the only way is to begin the game all over again.

Puzzle—The Thirty-Four.

This is an adaptation of the old magic square, which amused the philosophers of old. A sketch of it appears in Albert Durer's painting of Melancholia. Sixteen discs or squares, numbered from 2 to 16, are placed indifferently on the table—or they may be in the fifteen box; and the puzzle is to so arrange them as to make the sum of the figures add up to 34, whether counted up, down, across or angularly. Here is the solution:

1	15	14	4
12	6	7	9
8	10	11	5
13	3	2	16

1	8	13	12
14	11	2	7
4	5	16	9
15	10	3	6

This is the simplest; but a more elaborate plan is to so arrange the figures that any form of the blocks will form a square sum of 34. See the annexed solution, which the ingenious may still further complicate:

16	3	2	13
5	10	11	8
9	6	7	12
4	15	14	1

Q

Queensware—To Make.

This is made of the same materials as the flintware, but the proportion in which the materials are mixed is not the same, nor is the ware glazed in the same way. The flintware is generally made of four measures of liquid flint, and 18 of liquid clay; the yellow ware has a greater proportion of clay in it. In some manufactories they mix 20, and in others 24 measures of clay with

4 of flint. The proportion for both sorts of ware depends very much upon the nature of the clay, which is very variable even in the same pit. Hence a previous trial must be made of the quality of the clay, by burning a kiln of the ware. If there be too much flint mixed with the clay, the ware, when exposed to the air after burning, is apt to crack, and if there be too little, the ware will not receive the proper

glaze from the circulation of the salt vapor.

Quills—German Method of Preparing.

Suspend the quills in a copper over water sufficiently high to touch the nibs; then close it steam-tight, and apply four hours' hard boiling; next withdraw and dry them, and in 24 hours cut the nibs and draw out the pith; lastly, rub them with a piece of cloth and expose them to a moderate heat. The quills prepared in this way are as hard as bone, without being brittle, and as transparent as glass.

Quinces—To Cultivate.

The quince appears to flourish best on a rather stiff and moist soil, in somewhat sheltered locations. See that they are entirely free of the borer before

planting. Set eight feet apart in rich soil. Bandage the stem with two or three wrappings of muslin, or any kind of cloth, as far down in the ground as possible, as the roots start less from near the surface. Let this bandage run six or eight inches above ground, then pile the soil compactly a couple of inches around the bandage, and renew this early every spring. Fine, large, golden quinces, rivaling the largest oranges, will reward your efforts, annually.

Should the borer by any means steal in, the same plan may be adopted for its destruction as in the apple. Should it however, get the advantage of you, and your trees become honeycombed, again set out young trees, so that by the time the old ones are gone the young ones will be in bearing.

R

Rabbit—Habits of the.

The rabbit litters four or five times a year, bringing forth from five to eight young ones at a time, and beginning to breed at the age of six months. The animal delights in a sandy soil, with a superficial layer of fine vegetable mold. In such places it can easily make its burrows, and enjoy abundant food. It is remarkable that while the young of the hare are born covered with fur, and possessed of sight so as to be able to shift for themselves, young rabbits are born blind, naked, and helpless; they cannot see for about twelve days after birth, nor leave the burrow for more than a month.

Rabbits and Hares—Best Kinds of.

The Belgium hare is the fad just now. Usually the stout, short-legged rabbits are better breeders than others, as well as more healthy. The large hare-colored variety is much esteemed, but the white, or white mottled with

yellow or black, is said to be the most delicate for the table. The grey is said to approach nearest to the flavor of the wild rabbit. Rabbit fanciers have different opinions as to the colors of the animals. Grey, as being the commonest, is held in least esteem; the black occupies the next place; the fawn, the white, and grey hold the third place; the pure albino with pink eyes is considered better than any of these; various admixtures of brown, grey, or black mixed with white, take the highest rank, and a uniform mouse color is greatly admired by a few as superior to any other.

Rabbits—To Rear.

It is of great importance that the rabbit-warren be properly adapted to the purpose intended. The rabbit in its natural state prefers a dry and airy place, and the rabbit house or hutch ought, on that account, to be kept always dry, clean and well aired. The hutch may be most suitably placed against the south wall of a house, so

as to obtain the advantage of the sunlight. It should be surrounded by a wire fence, and, in the interior of the enclosure, boxes ought to be fixed as breeding places, separated by partitions from other boxes adapted for the young rabbits, which partitions are furnished with doors capable of being closed so as to separate the young ones from the parents, when required.

Rabbits—To Feed.

All the various vegetables and roots used at table may be given to them, and celery, parsley, and the tops as well as the roots of carrots are preferred by them; while lettuces, stumps of cabbage and cauliflower, turnips, and parsnips, are all useful. In spring, tares are excellent, and the dandelion, the milk thistle, and sow thistle, are all much relished by them.

Rabbits—To Trap.

To trap rabbits, take brass wire, make a noose, large enough for them to put their head through; then trim a small tree near the road, fasten the wire to the tree-top, bend over and fasten by a notch to a peg driven in the ground; then make a fence of fine brush a little across the road, leaving a hole to hang the wire in. — Some use box traps, baited with sweet apple; also steel traps laid in their roads and fastened.

Raccoons—To Catch.

The surest way to catch them is with a good cur dog. One that will not bark when tracking but will bark at the tree. But if you wish to trap them with steel traps, go to the woods, near a swamp, find a big log lying in or near a swamp, set your trap on the log and then get two old limbs, set one on each side of the log over the trap, crossing at the top, forming an x, so that the coon will have to go under them

and over the trap. Bait if you choose with frogs or chicken. But whether you bait or not the coon will run onto the old log if he comes in the neighborhood. Or, on the same plan, you can set a dead-fall.

Raccoon Skins—To Prepare.

The skin of the raccoon should be nailed to boards to dry, then treated to a paste of 1 oz. alum; 1 oz. salt; about $\frac{1}{2}$ drachm sulphuric acid; 2 gills water and a little wheat bran. It should when dry be scraped off with a spoon or dull knife as in the case of mink skins. Instead of nailing it on boards, roll it up and work it soft.

Rag Carpets.

These useful articles of the house are made and highly prized in nearly all families in the country. The suggestions of the experienced may lessen the labor of making them, besides helping to make a better looking carpet.

First, the rags or old garments ought to be washed clean; then rip them to pieces, rejecting the parts too worn to be used; if not ready to color them, tie in bundles all that are to be colored same color, and any that do not need coloring, may be cut and sewed, or tied up by themselves, if not ready to commence the work. All woolen rags ought to be kept in linen sacks, to exclude the moths from them.

To color.—Any light, mixed, or plaided woollens may be improved in color by dipping in a good red dye. Clean white rags can be colored yellow, orange, blue, or green. Dingy white rags will look well, colored hemlock color, and set with lime. This is a cheap, pretty and durable color for some of the rags and warp. Bits of bark may be gathered around saw mills, when one cannot get them elsewhere; boil enough bark to make

a strong dye, and add to it a little clear lime water, after removing all bits of bark or straining the dye. If dregs remain in any dye, it will spot the cloth or yarn. (See Dyeing).

If a smooth parlor carpet is wanted the rags must be cotton, and other rags that are made of fine yarn. Coarse, threaded woolen rags make a carpet look rough, and though it may do well enough for a kitchen, it is not so nice for a parlor.

Unless the rags are light, it will take a pound and a half, and sometimes more, for each yard of carpet. To know when sufficient rags are prepared for the number of yards wanted, the prepared rags must be weighed. If the rags are light, it will not take quite a pound and a half; but if they are coarse-threaded or woolen rags, it will take some times more than a pound and a half, if the carpet is well beaten up.

If a striped carpet is wanted, tear each color separately, and mix together the different shades of the same color when sewing; this will make the carpet more uniform in color and prettier than if some stripes contained all the brightest colors, and other paler ones, which they will, if the shades of the same color are not mixed in sewing. A carpet always looks much better if all the breadths are uniform in color, or by mixing the shades of the same color in sewing them.

For a hap-hazard carpet, all different colors may be mixed in sewing. This will use up all short rags, of any color or shade, and often makes a very pretty carpet, which may be woven easier and cheaper than a striped carpet. Short pieces, or those not more than three or four yards long, alternated with shorter ones, look the best in this kind of carpet.

For warp, good, strong, prepared

yarn is the best, and saves much labor. It may be reeled into skeins of five knots before coloring, allowing one skein to a yard, and about three knots over to be woven in at the end of each breadth, for binding.

Measure the inside of a room, and let the weaver know how long to make each breadth. Carpets will shrink a little in length from the weaver's measure after they come out of the loom, but will often stretch a little in width. The stripes will match the best, if the edges on the same side of the loom are sewed together, as the different sides of the loom sometimes vary a little.

Rain—To Produce.

Rain is such a necessity to the success of crops, that whatever will aid its occasional appearance should be cultivated. It has been proved without doubt that trees do this, for it has been noticed that wherever the country has been denuded of its forests, as Greece or Italy, rains gradually become more infrequent, and that in parts of the country where formerly there was little or no rain—as on the western prairies—and trees have afterward been planted, occasional and copious rains have always resulted. Farmers should be guided by this fact.

Raspberries.

Raspberry canes, when set out, should be planted three feet apart in the row, and the rows three and a half to four feet apart. Cut down the canes to within six inches of the ground and set firmly. Choose a rather moist spot for them, and if in the shade a portion of the day so much the better. They can be planted under fruit trees, where scarcely anything else will grow and the berry will be much larger and

finer. They like a cool, moist soil, kept so by liberal mulching with leaves, light manure, or any trash.

Rats—To Destroy.

The following recipe is highly recommended as the best known means of getting rid of these most obnoxious and destructive vermin.—Melt lard in a bottle plunged in water, heated to about 150 degrees Fahrenheit; put into it half-an-ounce of phosphorus for every pound of lard; then add a pint of proof spirit, or whiskey; cork the bottle firmly after its contents have been heated to 150 degrees, taking it at the same time out of the water, and agitate smartly till the phosphorous becomes uniformly diffused, forming a milky-looking liquid. This liquid, when cooled, will afford a white compound of phosphorous and lard. As the spirit separates from the mixture it may be poured off and used again for the same purpose. This compound, on being warmed very gently, may be poured out into a mixture of wheat flour and sugar, incorporated therewith, and then flavored with oil of rhodium, or with oil of aniseed, etc. The dough, being made into pellets, is to be laid in rat holes. Being luminous in the dark it attracts their notice, and being agreeable to their palates it is readily eaten, and proves fatal.

Another.—Chloride of lime is a good preventive, as rats have an extreme aversion to it.

Another.—Mix some fine plaster of Paris with an equal quantity of flour; put the mixture in the place infested by the vermin, and a vessel full of water beside it. The rats will devour the mixture, and then drink; whereupon the plaster, brought into contact with the water, will become solid, and like a stone in their stomachs, which will cause their death. This method is evidently highly

preferable to the use of arsenic, which is always attended with danger.

Another.—Flour, 6 pounds; sugar, 1 pound; sulphur, 4 pounds; phosphorus, 4 pounds.

Another.—When a house is infested by rats which refuse to nibble at toasted cheese, and the usual baits, a few drops of the highly scented oil of rhodium, poured on the bottom of a cage top, will always attract before morning. When the trap baited with all manner of edibles has failed to attract a single rat, the oil of Rhodium caused it to be completely crowded night after night.

Another.—Mix powdered nux vomica with oatmeal, and lay it in their haunts, observing proper precaution to prevent accidents.

Another.—Cover the floor near their holes, with a thin layer of moist caustic potash. When the rats walk on this it makes their feet sore. These they lick with their tongues, which makes their mouths sore, and the result is that they not only shun this locality, but appear to tell all the neighboring rats about it, and eventually the house is entirely abandoned by them, even if the neighborhood is teeming with them.

Another.—Corks, cut as thin as wafers, roasted or stewed in grease, and placed in their tracks; or dried sponge in small pieces, fried or dipped in honey, with a little oil of rhodium, or bird-lime, laid in their haunts, will stick to their fur and cause their departure. If a live rat be caught, and well rubbed or brushed over with tar, and train-oil, and afterward put to escape in holes of others, they will disappear.

Another.—Cover a common barrel with stiff, stout papers, tying the edge around the barrel; place a board so that the rats may have an easy access to the top; sprinkle cheese

parings or other "feed" for the rats on the paper for several days, until they begin to believe they have a right to their daily rations from this source. Then place at the bottom of the barrel a piece of rock about six or seven inches high, filling with water until only enough of it projects above the water for one rat to lodge upon. Now replace the paper, first cutting a cross in the middle, and the first rat that comes on the barrel top goes through into the water and climbs the rock. The paper comes back to place, and the second rat follows the first. Then begins the fight for the possession of the dry place on the stone, the noise of which attracts the rest, who share the same fate.

Another.—The possession of a ferret—at once the safest and deadliest enemy of the rat.

Razor—To Hone and Strop.

Let the hone be seldom and but sparingly resorted to, and never, unless by frequent and repeated stropping the edge of the razor is entirely destroyed; use the best oil, and be careful to preserve the hone clean and free from dust.

Process of Shaving.—Previously to the operation of shaving, it will be found of service, particularly to those who have a strong beard and a tender skin, to wash the face well with soap and water, and the more time is spent in lathering and moistening the beard, the easier will the process of shaving become. Dip the razor in hot water before applying it to the face; use the blade nearly flat, always taking care to give it a cutting instead of a scraping direction.

After Using the Razor.—Strop the razor immediately after using it, for the purpose of effectually removing any moisture that may re-

main upon the edge, and be careful not to employ a common strop, as the composition with which they are covered is invariably of a very inferior quality, and injurious to a razor.

To Renovate Razor Strops. — The strop should always be of the best manufacture, and when the composition is worn off it will be found particularly useful to rub it over, lightly, with a little clean tallow, and then put upon it the top part of the snuff of a candle, which being a fine powder, will be found the best composition ever used for the purpose. Another excellent mode of renovating a razor-strop is by rubbing it well with soft pewter or lead.

Razor Strop Paste.

Levigated oxide of tin (prepared putty powder) 1 oz.; powdered oxalic acid $\frac{1}{4}$ oz.; powdered gum 20 grs.; make it into a stiff paste with water, and evenly and thinly spread it over the strop. With very little friction this paste gives a fine edge to the razor; its efficiency is still further increased by moistening it.

Another.—Emery reduced to an impalpable powder 2 parts; spermaceti ointment 1 part; mix together, and rub it over the strop,

Another.—Jewelers' rouge, black lead, and suet, equal parts; mix.

Razor Paper—Substitute for Strop.

This article supersedes the use of the ordinary strop; by merely wiping the razor on the paper, to remove the lather after shaving, a keen edge is always maintained without further trouble; only one caution is necessary—that is, to begin with a sharp razor, and then "the paper" will keep it in that state for years. It may be prepared thus: First, procure oxide of iron (by the addition of carbonate of soda to a

solution of persulphate of iron), wash well the precipitate, and finally leaving it of the consistency of cream. Secondly, procure a good paper, soft and thin, then with a soft brush spread over the paper (on one side only) very thinly the moist oxide of iron—dry, and cut into two inch square pieces. It is then fit for use.

Reds.

Reds have their bases in iron mostly, and some have supposed that all reds are dependent upon the presence of iron for their color.

Carmine is kaolin, or China clay, colored with cochineal, and, being prepared with much difficulty, it is very expensive. A common article is composed of alum and cream of tartar, colored with cochineal. This color fades rapidly on the exposure to the sun, and is of little use in out-door work. It is a rich, transparent color.

Vermilion is composed of sulphur and quicksilver. The finest quality, at present, comes from France, it being difficult to get Chinese vermilion that is free from pulverized glass; in fact, the greater portion of the Chinese vermilion now in the market is almost worthless in consequence of this adulteration.

The English and American vermilion are cheaper, and inferior in color rather than quality.

Chrome Red—or American vermilion, as it is sometimes called, though not so fine a color when first used, is much cheaper than vermilion, being one fifth the price; it stands exposure much better, retaining its hue long after the best Chinese has turned brown. For this reason it is much better adapted to all out-door painting. Its composition is saltpetre and chrome yel-

low, produced by a process of heating and washing.

Rose Pink is nothing more than whiting, tintured with Brazil wood, and is of little service in out-door painting, as it immediately fades on exposure to light. It is cheap, and being transparent, does very well for a glaze for chairs or other furniture.

Red Lead or red oxide of lead, is of more use in boiling in oil to make it dry than anything else. With chrome yellow, it makes a rich ground for mahogany. It is a durable color, and is therefore preferred for painting wagons.

Madder Lake is the only lake that does not fade. A fine, transparent glaze for beautiful and delicate work, but too expensive for common work. Its composition is alum and soda, or silicate of potash, or kaolin colored with madder.

Venetian Red is an earth, found in various parts of the world. It is the principal body used for all common purposes.

Refrigerator—Home Made.

See "Ice Chest—To Make."

Rennet—(also called Runnet).

The Bavarian mode of curing consists in turning out the contents of the skin of the stomach, wiping off all specks or dirt with a cloth, and then blowing up the skin or filling it with air like a bladder. The ends are tied with a string, and a little salt applied to this part only. The skin treated in this way, soon dries perfectly, and is as sweet and clean as can be desired. Salt neutralizes in some degree the action of rennet, therefore the rennets treated on the Bavarian plan are much more effective than those cured in the old way. When the rennets cured on this plan are dry, the air may be expelled, and the skins can

be packed away in a small space, and are easily kept clear of insects. The defect in salted rennets is, that the salt in wet weather accumulates dampness, and, if care is not taken to keep them in a dry place, they drip, and thus lose their strength.

Rennet—Mode of Use.

The way to use rennet is to cut off a bit of suitable size (a piece an inch square is large enough to coagulate several gallons of milk) and soak it for some hours in water; then add the whole to the milk, a little warmed. The mixture is now very gradually heated to something above blood-heat, or about 120°. Very soon it undergoes a great change, and a solid white curd is separated from the whey.

Reversi.

This very popular game is played on an ordinary chess or checker board, with sixty - four reversible pieces or counters (usually red on one side and black on the other).

Each player takes thirty-two of the counters, one placing his with the red side uppermost, and the other the black side.

The first player places a counter on one of the centre squares. The other player then places one of his, and so on until the four centre squares are filled up.

The object of the game is to capture and keep as many of your opponent's men as you can by reversing them. The centre squares being filled up, the next player places a piece on one of the squares adjoining one of his opponent's pieces, thus enclosing it between two of his own color. He is then entitled to reverse and claim the piece as his own. A player may capture all his opponent's pieces that happen to lie in a continuous and unbroken line (either straight or diagonally) between two of his own.

At every move at least one piece must be taken, and unless this is done the player loses his turn, and his opponent proceeds to play the pieces as long as he is so situated.

A piece once placed on the board must not be moved from its particular square, but it can be reversed by either player as often as occasion presents itself.

The player who succeeds in blocking his opponent, or who, when the whole sixty-four squares have been covered with pieces, has the greater number of his colors on the board wins the game. It may happen that the game is finished before all the squares are occupied.

If the player omits to reverse all the pieces which he is entitled to reverse, he must correct the omission if his opponent calls his attention to it.

Rhubarb—Growing.

All rhubarb plants ought to have a heavy dressing of manure every spring, to be forked in, and two or three hoeings through the season to keep down all the weeds. It is a great point to have the stalks tender, and to secure this they ought to be grown rapidly under stimulating manures or a warm, rich soil. The ground before setting out ought to be plowed thoroughly and sub-soiled or trenched deeply, and, if necessary, drained. Turn under plenty of well-rotted manure, at the rate of at least sixty or seventy horse cart loads to the acre, for the greater the quantity of manure, the larger and finer will the rhubarb grow, and the larger and finer it is the more it will bring.

Rhubarb—Transplanting.

Rhubarb roots require replanting occasionally. If the stools remain undisturbed for several years, they often commence to decay in the

centre, and after a while the whole plant becomes diseased. Every four or five years the stalks should be lifted and divided, leaving but one large crown, with its accompanying roots attached. These may be again planted in the same soil, or upon some fresh plat, the latter method being preferable, although we are not a very strong disciple of the theory that plants run out if grown for many years in the same soil.

Ribbons or Silk—To Keep.

In putting away ribbons or silk, wrap or fold them in coarse brown paper, which, as it contains a portion of tar or turpentine, will preserve the color of the article, and prevent white silk from turning yellow. The chloride of lime used in manufacturing white paper renders it improper to keep silks in, as it frequently causes them to spot or to change color.

Rich—How to Get.

The value of money is appreciated when you need it more than at any other time.

Learn to save something from your income, be it ever so small.

Do not be in a hurry to invest in "good things"; they generally prove to be the worst.

Never put your money in a business until you have studied it well; a little practical knowledge of your own is better than trusting all to the other fellow.

Beware of loaning money to enable others to start business or speculate. When you are rich you may take a risk of this kind, but not while you are struggling yourself.

If you are a youth, carefully select a trade or profession, and then master it; if you fail in business, you will always have something to fall back upon.

Be truthful and honest. Nothing serves so well in the battle of life, or is

so valuable, as integrity of character. It is better than gold, always current, and impossible to be stolen.

Never brag about your savings. This will save you the disagreeable experience of refusing to lend them to a friend.

Never tell when you are making money, nor how you do it; millions of people are on the lookout for just such information.

Do not carry your money. It is risky and unwise to carry your savings with you; it is still more foolish to keep them about the house. The best thing to do is to place your money in a good savings bank, where it will earn interest and be safe.

Right Partner—To Select.

Before associating yourself with any person in business, inquire into his personal character, his habits, and general fitness for the proposed enterprise.

Recollect that the savings of a lifetime are often swept away in a day by foolishly acting on an impulse, or being influenced by the glib tongue of a schemer. Always investigate, even if you pay for the information; the money thus expended frequently insures you against great loss, and cannot possibly lessen your chance for gain.

Avoid running in debt as you would the plague. Never buy a thing until you have the money to pay for it; try to observe this rule. Even if you suffer inconvenience you will at least be independent and free from possible humiliation.

Riches is a comparative term; but every person is rich who has more income than outgo. When this degree of riches is reached a man can act deliberately, he is more independent, and if his tastes and ambition call for greater wealth the way to affluence is much easier.

Recollect that one of the greatest

helps to prosperity and riches is Health. It is so priceless, that the wealthiest person in the world would give his whole fortune to possess it, if it were necessary. Therefore, always guard your health. Health makes us enjoy a crust of bread with a cup of water, while the most sumptuous banquet has no charms for the sick. Next to honor, health is the dearest possession to man or woman. Exercise and cleanliness are the vital principles of health.

Be prudent, but do not be mean. The poorest person has the power of doing some good to a fellow sufferer. If ever so little, give to the worthy needy according to your circumstances. It will make you feel better, and always gives pleasure when remembered. Besides, many a poor person has become fortunate, and the friends of adversity should win the gratitude of all true hearts.

Benjamin Franklin said: "The way to wealth is as plain as the way to market. It depends chiefly on two words, Industry and Frugality; that is, waste neither time nor money, but make the best use of both. Without Industry and Frugality nothing will do, and with them everything."

Rings.

Rings which have precious stones in them should always be taken off the finger when the hands are washed, or the stones may be damaged.

Rings—To Remove Tight.

Pass the end of a fine string under the ring, and wind it evenly round the finger upward as far as the middle joint. Then take the lower end of the string under the ring, and slowly unwind it upward. The ring will then gradually move along the string and come off.

Roads—Repairing.

This is an operation which is, or should be, performed immediately after

the settling of the ground in the spring. In agricultural districts it is often deferred till later in the season. In this case the labor of putting a road in good condition is often doubled. It is as true of roads as of raiment that "a stich in time saves nine," and if for the word stitch we substitute ditch, the old saw will be even more forcible in its meaning.

Winter makes sad havoc in the earth roads which intersect the country in all directions. Frosts upheave, and the springs wash out deep gulleys and ruts, and when at last the reign of frost is over, that which was straight is all crooked; level places are changed into alternate rises and depressions, stones are left on top, and, in short, these roads become sloughs of despond, in which loaded teams wallow. Wagons are left standing for weeks, up to the hubs in mud, simply because it is beyond the power of horse-flesh to extricate them.

If, when the mud has dried, the ruts were filled at once, and the ditches at the roadside opened, much would be gained, but as this is generally neglected, the June thunderstorms have things all their own way. Sluices are filled, bridges undermined and washed away, and, finally, when the "road master" summons the inhabitants to turn out and work on the road, they find a great deal to do. The road is at last put into passable condition, and remains so till the fall rains, and the market wagons again cut them all up.

An old farmer once remarked to us that there is no other work done by farmers that pays so well as road making; but there are few of them that are far-sighted enough to see that the saving effected by good roads in the current expenses of repairs in wagons and harnesses, and the increase of loads which can be carried, pay liberally for the work which they do grudgingly.

Robin—How to Tame and Feed.

If we wish to tame a robin, one of the most pleasing of home pets, it must be done very gradually. Make friends with a young bird, and feed it, when it will often come contentedly to roost indoors in the colder weather, and will cheerfully introduce its small brown brood, to hop about before us on the gravel walk, later in the season. And one tame robin will then bring in another, when they are at peace. A young bird brought up from a nest is a most agreeable pet. He ought to possess a cage, but be allowed to go in and out at will. When confined, water should be kept in some convenient locality so that he can take his bath whenever he wishes it. Old birds should never be caught for the purpose of taming or confining.

Robins eat hard-boiled eggs, bread crumbs, German paste, hemp and canary seed, and must have abundant water.

Rock Blasting.

Sawdust of soft wood, mixed with gunpowder in equal parts, is said to have three times the strength of gunpowder alone, when used in blasting.

Rockwork—Artificial Coral for.

Take four parts of yellow resin, and one part of vermilion, and melt them together; dip twigs, cinders or stones in this mixture, and it will give them the appearance of coral. It can be used for rockwork, grottoes or any fancy work, as a substitute for coral.

• Roofs—Composition for.

Take one measure of fine sand, two of sifted wood-ashes and three of lime, ground up with oil. Mix thoroughly, and lay on with a painter's brush, first a thin coat and then a thick one. This composition is not only cheap, but it strongly resists fire.

Roofing—A Cheap.

First cover the roof with ordinary tongued and grooved floor-boards, the

same as you would lay a floor; then take roofing-paper, and cover the boards with that, to be laid on as shingles are laid, each sheet lapping about an inch, and fastened down with large tacks. Over the paper spread raw tar. Raw tar is that which is not heated to render it thicker. It can be spread with a trowel (made of a shingle) about the sixteenth of an inch deep. Next take a sieve, fill it with sand, and sprinkle as much over the tar as it will absorb, sifting on the sand as each course of tar is laid on, beginning on the upper side of the roof, about half an inch thick.

Such a roof should have a slight descent—say one foot in twelve, more or less; and the tar should be laid on when the heat of the sun will not cause it to run out of its place before the sand is put on it.

A mortar made of tar and sand, like a thick paste, will stop any leaks in roofs, especially around chimneys, that can be covered by it.

Roofs of Tin.

For a flat roof, tin is, beyond question, the most economical covering that can be applied. If not neglected, it is absolutely indestructible by external influences, and will last a hundred years, in as good condition as when first laid on, if kept well painted. Tin on a house-top should be well painted once in four years.

Roof Painting. — For roofs, light, cool colors are preferable, because they reflect the warm rays of light, and thereby lessen the expansion and contraction of the metal, and the shrinking of the boards underneath, and so lessen the liability of the tin to crack in the seams. The temperature of attic rooms in summer will be materially lower if the roof be painted with a light rather than a dark color.

The writer has learned, from long experience, that the finest French ochre

is the most economical pigment that can be used for that purpose. If, as is sometimes the case in country houses, where the roof is a conspicuous object in the architecture of the building a dark color be indispensable, the use of pure Venetian red, darkened with lamp-black, is recommended as the most durable and economical. If by some process the oil used in roof-painting could be prevented from becoming hard and brittle, it would be a great gain.

The poorest oil paint, however, is better than neglect; and the best economy consists in keeping the tin entirely and thoroughly protected from the corroding influence of dampness. Old paint, which has become "fatty" from exposure to the atmosphere, is better than new for roof-painting. Not a drop of turpentine should be used for such work.

Roofs of Thatch—How to Make.

Rye or wheat straw only should be used, and must be carefully threshed to leave the straws unbroken. Bind in bundles, distributing the butts of the straws equally to each end of the bundle. A good roof cannot be made if the straws all lie one way. It is always customary to make the band three feet long, as this gives a bundle of convenient size for handling. In a dry time set the bundles on end and throw water on them a day or two before using them.

The rafters are placed in the usual way, and crossed by slats, two by two, nailed fourteen inches apart, though twelve inches will do equally well.

Begin at the eaves and lay a row of bundles across. Have an iron needle 18 inches long prepared and threaded with oakum 8 feet long. Fasten the thread to the slat and pass the needle through the bundle to a boy stationed under the rafters, making three to four stitches to the bundle. The boy draws the cord

up tight, and passes the needle up through again, but on the other side of the slat. By this means the first course is sewed on. Succeeding courses are treated in the same way, being laid so as to overlap the stitching. Lay the heaviest row of straw at the eaves to make it look well. When you come to the ridge, fold the tops of the straw over until you bring up the other side, then get some thin sods, 10 by 14 inches, and 1½ inches thick, and lay them neatly upon the top, using a small piece of board to clap them all sleek and smooth. Boards put on like ordinary ridge boards will do instead of sods, if preferred.

Get the point of an old scythe, about 18 inches long; attach a handle, so that it will be like a long knife, and with it "switch down" the roof all over, to carry off all the loose straws, and trim the others off smooth. If well done, the roof will be as smooth as a board. Stretch a cord along the eaves the whole length of the building, and trim off straight by it, leaving the outside a little lower than the inside, which will prevent its looking thick and heavy.

A roof made in this way will not be injured by wind or rain, and will last from twenty-five to thirty years.

Roofs—Fire-proof and Water-proof Wash for.

Slake lime in a close box to prevent the escape of steam, and when slaked pass it through a sieve. To every six quarts of this lime add one quart of rock salt and one gallon of water. After this boil and skim clean. To every five gallons of this add by degrees, three quarters of a pound of potash and four quarts of fine sand. Coloring matter may be added if desired. Apply with a paint or whitewash brush. This wash looks as well as paint, and is almost as durable as slate. It will stop small leaks in a roof, prevent the moss from growing over it, and render

it incombustible when sparks fall on it. When applied to brickwork, it renders the brick utterly impervious to rain; it lasts as long as paint, and the expense is a mere trifle.

Roofs—Moss on.

Don't let the moss gather on the roofs of your buildings. It may be ornamental to some eyes, but is not beneficial to the shingles. They will rot fast by the moisture it retains; so sprinkle some fine lime upon them just before a rain, and you will be surprised to see how clean it will be taken off.

Rooms, Dark—To Lighten.

If the glass in the window of a room—the darkness in which is caused by its being situated in a narrow street or lane—is placed within the outer face of the wall, as is the custom in building houses, it will admit but very little light, what it gets being only the reflection from the walls of the opposite houses. If, however, for the window be substituted another in which all the panes of glass are roughly ground on the outside, and flush with the outer wall, the light from the whole of the visible sky, and from the remotest part of the opposite wall, will be introduced into the apartment, reflected from the innumerable faces or facets which the rough grinding of the glass has produced. The whole window will appear as if the sky were beyond it, and from every point of this luminous surface light will radiate into all parts of the room.

Roots—To Dry.

They should be rubbed in water to get rid of the dirt and also some of the mucous substance that would otherwise render them moldy; the larger are then to be cut, split, or peeled, but in most aromatic roots, the odor residing in the bark, they must not be peeled. They are then to be spread on sieves or hurdles dried in a heat of about 120°

Fahrenheit either on the top of an oven, in a stove, or a steam closet, taking care to shake them occasionally, to change the surface exposed to the air. Thick and juicy roots as rhubarb, briony, peony, water-lily, etc., are cut in slices, strung upon a thread, and hung in a heat of about 90° to 100° Fahr. Squills are scaled, threaded and dried. Rhubarb should be washed to separate that mucous ingredient which would otherwise render it black and soft when powdered. Potatoes are cut in slices and dried.

Roots—To Preserve.

These are preserved in different ways according to the object in view. Tuberous roots, as those of the dahlia, peony, tuberose, intended to be planted in the succeeding spring, are preserved through the winter in dry earth, in a temperature rather under than above what is natural to them. So may the bulbous roots of commerce, as hyacinths, tulips, onions, etc., but for convenience, these are kept either loose, in cool, dry shelves or lofts, or the finer sorts in papers, till the season of planting.

Roots of all kinds may be preserved in an icehouse till the return of the natural crop.

After stuffing the empty spaces with straw or sawdust, and covering the surface of the ice with the same material, place on it case boxes, easks, baskets, etc., and fill them with turnips earrots, beetroots, and in particular, potatoes. By the coldness of the place vegetation is so much suspended that all these articles may be thus kept fresh and uninjured till they give place to another crop in its natural season.

Ropes—Rules for Computing the Strength of.

To find what size rope you require, when arranged with block and tackle, to lift a given weight: Divide the weight to be raised by the number of

parts at the movable block, to obtain the strain on a single part; add one-third of this for the increased strain brought by friction, and use the rope of corresponding strength.

One-sixth of forty tons is six and two-thirds tons, which with one-third added, is nine tons, nearly, for which you should use a six inch or six and a half inch rope.

Conversely:—To find what weight a given rope will lift when rove as a tackle: Multiply the weight that the rope is capable of suspending by the number of parts at the movable block, and subtract one-fourth of this for resistance.

Thus: 8.9 tons, the strength of the rope, multiplied by 6, the number of parts at the movable block, minus 13.3 or one-fourth, gives 40.1 tons as the weight required.

Wire rope is more than twice the strength of hemp rope of the same circumference; splicing a rope is supposed to weaken it one-eighth.

The strongest kind of hemp rope is untarred, white, three-stranded rope; and the next in the scale of strength is the common three-strand, hawser laid rope, tarred.

Rope—To Make Flexible.

New, stiff rope may be made flexible by simply boiling it two hours in water, and then hanging it in a warm room to dry thoroughly.

Rosebuds—To Preserve.

A method employed in Germany to keep rosebuds fresh in the winter, consists in first covering the end of the recently cut stem with wax, and then placing each one in a closed paper cap or cone, so that the leaves do not touch the paper. The cap is then coated with glue, to exclude air, dust, and moisture, and when dry it is stood up in a cool place. When wanted for use, the bud is taken out of the cap and placed in water, after cutting off the

end, when the rose will bloom in a few hours.

Rose Trees—To Clear from Blight.

Mix equal quantities of sulphur and tobacco dust, and strew the mixture over the trees in the morning when the dew is on them. The insects will disappear in a few days. The trees should then be syringed with a decoction of elder leaves.

Roses—To Kill Mildew on.

Mix equal parts by weight, of powdered sulphur and quicklime. Moisten with water, and let the lime slake in contact with the sulphur. After the lime is slaked, place the whole in a kettle with plenty of water, and boil it until you get a saturated solution of the sulphuret of lime. This will be transparent and of an amber color, and should be drawn off and preserved in bottles for use. A gill of this added to a gallon of water, and applied with a syringe, will kill the mildew without injuring the roses.

Rosewood Furniture.

It should be rubbed gently every day with a clean, soft cloth, to keep it in good order.

Rosewood—To Imitate.

Boil half a pound of logwood in three pints water, till the mixture is of a very dark red; add half an ounce salt of tartar. While boiling hot, stain your wood with two or three coats, taking care that it nearly dries between each; then, with a stiff, flat brush, such as is used for graining, form streaks with the following black stain:—Boil one pound of logwood in four quarts water; add a double handful of walnut peel or shells; boil it up again, take out the chips, add a pint best vinegar, and it will be fit for use; apply while hot. All this, if carefully executed, will produce very nearly the appearance of dark rosewood.

Rug—To Make a.

A very economical rug can be made in the following manner: take coffee sacks and sew together of the required size, which fasten upon a rough frame of lath nailed together. Trace a design in the center—for instance a diamond, and a waved or pointed border. Geometrical designs are usually prettier than those miserable stiff masses called flowers. To work this sacking as if it were canvas, prepare balls of assorted rags sewed together, as for carpets, except that they must be cut evenly and not more than half an inch wide; each color wound in a separate ball. Now take a large hook—you can manufacture one from a piece of wire. Put the strip to be worked underneath, and insert the hook from the upper side, catch the strip below, and draw it up through the foundation about one half an inch, making a loop; put the hook through the next diagonal place, and draw up another loop; proceed in this way, following the outline of the center design. Three times around is enough of the outline color; then work the outline of the border, and fill up the margin. Fill up the inside figure with a contrasting color. Next work the corners; and fill up the ground with a dark color. Remove from frame and hem the edges underneath the work. This rug is durable, and can be made quite handsome, with good colors.

Rugs, Sheepskin—To Clean.

Make a very strong lather, by boiling soap in a little water, mix this with a sufficient quantity of water (rather more than lukewarm), to wash the mat or rug in, and rub boiled soap on those portions of it which require additional cleansing. When the mat has been well washed in this water, prepare another lather in the same way, in which a second washing must take place, followed by a third, which ought

to be sufficient to cleanse it thoroughly. Rinse it well in cold water until all the soap is removed, and then put it in water in which a little blue has been mixed, sufficient to keep the wool of a good white, and prevent its inclining to yellow. After this it should be thoroughly wrung, shaken, and hung out in the open air with the skin part towards the sun, but not while it is scorching, otherwise the skin will become hard. It must also be shaken often while drying, for if not it will be quite stiff and crackly. It should be frequently turned, being hung up first by one end and then by the other, until it has entirely dried.

Rugs, Hearth.

If you cannot obtain one that exactly corresponds with the carpet, get one entirely different; for a decided contrast looks better than a bad match. The hearthrug, however, should reflect the color or colors of the carpet if possible.

Rugs of sheepskin, in white, crimson, or black, form comfortable and effective hearthrugs for a drawing-room or a dining-room. In the winter these may be removed and an ordinary woolen rug laid down as long as fires are kept.

Rust—To Protect Iron and Steel from.

The following method is but little known, although it deserves preference to all others: Add one and three-fourths pints of cold water to seven ounces of quicklime. Let the mixture stand until the supernatant fluid is entirely clear. Then pour this off and mix it with enough olive oil to form a thick cream, or rather to the consistency of melted and re-congealed butter. Grease the articles of iron or steel with this compound, and then wrap them up in paper, or if this cannot be done apply the mixture somewhat thicker.

Rust—To Keep Iron and Steel Goods from.

Dissolve half an ounce of camphor in one pound of lard; take off the scum: mix as much black-lead as will give the mixture an iron color. Iron and steel goods, rubbed over with this mixture, and left with it on twenty-four hours, and then dried with a linen cloth, will keep clean for months. Valuable articles of cutlery should be wrapped in zinc foil, or be kept in boxes lined with zinc. This is at once an easy and effective method.

Rust—to Protect Iron from.

The following fluid is claimed to prevent the rusting of iron: $1\frac{3}{4}$ pints each of linseed oil and brown varnish, 1 quart of turpentine, and $1\frac{1}{2}$ ounces of camphor. Heat the mixture over a water-bath, stirring constantly, then immerse the articles for a few moments, rinse them off with warm water, and dry.

Rust—To Protect Lightning Rods, Metal Roofs, etc., from.

Convert 2 parts of graphite mixed with 8 parts of sulphide of lead and 2 of sulphide of zinc into an impalpable powder, and add gradually 30 parts of linseed-oil varnish previously heated to the boiling point. This varnish dries very quickly and protects the metals coated with it from oxidation.

Rust—To Protect Wire from.

Melt mineral pitch and add to it one-fifteenth part by weight of coal tar, and one-twentieth part by weight of very fine sand, and immerse the wire in the mixture. The coating becomes hard in 24 hours.

Rust—To Protect Wrought Iron from.

The following process was observed in painting the Britannia bridge across the Menai Strait in North Wales. All of the iron work was scraped and rubbed with wire and bristle brushes

until the surface acquired a metallic lustre. The holes, joints, and cracks were carefully cleaned and filled with red or white lead putty, and when dry the whole was brushed again and the bridge painted with four coats of the following paint at intervals of eight to fourteen days: Pure white lead, 560 parts; crude linseed oil, 133 parts; boiled linseed oil (without an addition of litharge) 18 to 36 parts, and spirit of turpentine, 18 parts.

After the fourth coat had been applied the whole was sanded with fine, white sand. To the paint for the last coat enough Berlin glue had been added to give it a light grayish tint.

The parts of the bridge not exposed to view received, after thorough scraping and puttying up, 3 to 4 coats of a varnish obtained by mixing eight parts of gas tar, one of spirit of turpentine, and two of pulverized lime.

Rust—To Remove from Polish-ed Steel or Iron.

Sometimes rust can be removed from polished iron or steel with little difficulty; but sometimes it cannot be made to disappear without polishing the surface anew. Rust is oxide of iron. The oxygen of the atmosphere unites with the iron chemically, thus forming a thin scale on the surface, not one thousandth part of an inch in thickness. Red rust may be formed on the polished surface a thousand times without materially corroding the metal, provided it be removed soon after it has formed. The usual manner of removing red rust is to cover the rusty portion with common olive oil and rub it in well with a woolen cloth. After it has stood a few hours, rub the parts with finely pulverized slaked lime, or Spanish whiting, until the rust is all removed. If red rust is allowed to accumulate until the polished surface is corroded, sweet oil and a severe rubbing will seldom remove it. The

entire surface must be repolished with emery, or some other grit, before black rust will disappear from polished steel or any other metal.

Rust—To Remove from Polished Iron.

Use emery paper or powdered brick, mixed with oil. Steel fire-irons and fenders, when put away for the summer, should be smeared over with vaseline. Old soft towels, or pieces of old sheets or table-cloths, make excellent wipers for iron and steel goods.

Rust—To Remove from Fire-Irons.

Apply a mixture of two parts of rotten-stone to one of sulphur, intimately mingled on a marble slab, and laid on with a piece of soft leather. Or emery and oil may be applied with excellent effect; not laid on in the usual slovenly way, but with a spongy piece of fig-wood fully saturated with the

mixture. This will not only clean, but impart a polish to the metal as well.

Rye—To Cultivate.

Rye ought never to be sown upon wet soils, nor even upon sandy soils where the subsoil is of a retentive nature. On hillsides, meadows and all soft lands which have received manure, this grain thrives in perfection, and, if once covered in, will stand a drought afterwards that would consume any other of the culmiferous tribe. The several processes may be regarded as nearly the same as those answering for wheat, with the simple exception of pickling, which rye does not require. Rye may be sown either in fall or spring, though the fall-seeded fields are generally bulkiest and most productive. It may succeed either summer fallow, clover or turnips; even after oats, good crops have been raised, and where such crops have been raised the land is always found in good condition.

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Sage—To Cultivate.

Put it out in rows two feet apart, and the plants a foot apart in the rows. Cultivate and keep clean; it does well in sandy soil. Dry in the shade. Put up in square pound packages hard pressed.

Salts—Inexhaustible, for Smelling Bottles.

Liquid ammonia 1 pint, otto of rosemary 1 drachm, otto of English lavender 1 drachm, otto of bergamotte $\frac{1}{2}$ a drachm, otto of cloves $\frac{1}{2}$ a drachm. Mix the whole together with agitation in a very strong and well-stoppered bottle.

This mixture is used by filling the smelling bottles with any porous absorbent material, such as asbestos, or, what is better, sponge cuttings, that have been well beaten, washed and dried.

Sandpaper (Superior)—To Make.

Take a quantity of broken window-glass, (that which has rather a green appearance on the edge is best); pound it in an iron mortar; then have two or three sieves, of different degrees of fineness, ready for use when wanted. Take any good tough paper (fine cartridge is the best), level the knobs and lumps on both sides with pumice stone, tack it at each corner on a board, and with good clear glue, diluted with about one-third more water than is used generally for wood work, go quickly over the paper, taking care to spread it evenly with your brush; then, having your sieve ready, sift the pounded glass over it lightly, yet so as to cover it in every part; let it remain till the glue is set, take it from the board, shake off the superfluous glass into the sieve,

and hang it in the shade to dry. In two or three days, it will be fit for use.

The paper will be much better than any you can buy, sand being frequently mixed with the glass and colored to deceive the purchaser.

Sarsaparilla—Fluid Extract of.

Sliced sarsaparilla 3½ lbs., boiling distilled water 5 gallons, reetified spirit 2 ounces. Boil the sarsaparilla in 3 gallons of water to 12 pints, and strain. Evaporate the mixed liquors to 18 ounces, and when cold add the spirit. Dose—1 to 2 drachms, or more.

Saving—Results of.

The following shows how easy it is to accumulate a fortune, provided proper steps are taken. The table shows what would be the result at the end of fifty years by saving a certain amount each day and putting it at interest at the rate of six per cent.

Daily Savings	The Result
One cent.....	\$ 950
Ten cents	9,504
Twenty cents	19,006
Thirty cents	28,512
Forty cents	38,015
Fifty cents	47,520
Sixty cents	57,024
Seventy cents	66,528
Eighty cents	76,032
Ninety cents	85,537
One dollar	95,041
Five dollars	475,208

Every person wastes an amount in twenty or thirty years, which if saved and carefully invested, would make a family independent; but the principle of small savings has been lost sight of in the general desire to quickly become wealthy.

Saw Teeth—Shape of.

The adaptation of tools, in form and construction, to the nature of the work required of them, is an important item in every branch of mechanical industry, and in none more vitally than in the

sawing of lumber. The distinction to be made according to the direction in which the saw is to run, whether across the grain or with the grain, is sufficiently plain, and is familiar to every workman in a saw mill. As the fiber of the wood to be severed in cross cutting presents a firm, almost unyielding resistance to the saw, the teeth are of an acute or lancet-like shape, cutting the wood rapidly asunder, as if with a succession of knives, and producing a fine granular sawdust; while the teeth of the rip saw, cutting with or rather separating the grain, are made comparatively large and coarse, encountering less resistance from the wood, which they tear into small chips or shavings. The experience of workmen in soft and especially in gummy or resinous woods, such as pitch pine, larch, etc., gives still more striking proof of the necessity of adapting the saw to the nature of the material in which it is to operate. To prevent the choking of the saw, and a resulting demand for additional power to maintain the motion, the points of the teeth require to be made acute and to have considerable pitch, in order to overcome the obstruction of damp sawdust accumulating in their path; and in gummy wood, an application of grease is often necessary, as a remedy for the heating and friction caused by the tendency of the resin to adhere to the saw.

It may be stated, in general terms, that for soft or yielding woods, of the class of which the willow and pine are common examples, the pitch should be greater, and the teeth large and acutely pointed. For mahogany, rosewood and other woods of tough and dense fiber, teeth of less size and of perpendicular pitch are appropriate. The principle which should govern the shape of the saw teeth is indeed an extremely simple one, and would seem to require no formal statement, more

especially as it is certain to make itself manifest, if disregarded, upon a brief experiment. In practice, however, it often fails to receive due attention, and no small amount of inconvenience and actual loss is occasioned by neglect of this material point.

Saw—To Put in Order.

First, the saw should be set; this may be done by laying the blade flat upon a piece of heavy plank or scantling, and bending the teeth with a hammer and punch. The set, or punch, can be made of a three-cornered saw file, broken off at each end, and the smallest end ground square. Set the punch squarely upon the tooth, but inclined from you, so that it rests mainly upon the point of the tooth, and hit it a light blow with the hammer. Every other tooth should be bent in this manner, then the saw turned over, and the operation repeated. The set already in the saw will be the guide as to the direction the tooth is to be bent. If the saw, previous to setting, is inclined to catch and jump, one of three things is the matter; the set is uneven, a few teeth are longer than the rest, or the teeth have been filed hooking. Any of these troubles can be easily detected and remedied. If by looking along the teeth from end to end, an unevenness is seen, lay the blade upon the head of an axe, or something of the kind, and strike gently upon the sides of the teeth with a hammer until all of the set is removed; then set the saw as above directed. If after the saw is properly set some of the teeth should be longer than others, put the blade between two thin boards, three or four inches wide, and as long as the saw; screw them firmly in a vice, the same as for filing, and run a flat saw-mill file lengthwise along the teeth until they are brought level. The saw is now ready for filing. The file should be placed between the teeth in a diag-

onal direction, but held level. Every other space should be filed from the small end to the handle; then the remaining spaces filed by holding the file at an opposite angle. After this operation is completed, then look across the teeth again, and if the channel between the rows of teeth terminates in the center, the filing is good; if it terminates at one side of the center, the full side needs more filing. If the saw catches and jumps after jointing up, it will be owing to the teeth having been filed too hooking, or, in other words, the points inclined too much towards the narrow end of the saw. This can be remedied by refiling and taking off from the lower side of the teeth enough to make them stand upright on the blade. Always file where there is sufficient light to enable you to see points distinctly. Be exceedingly careful to stop filing as soon as the tooth is filed to a perfect point. One thrust with the file after the tooth has been brought to a complete edge, will shorten it and put the saw out of order just in proportion as the point is filed off. Let the points be set uniformly, and only a little. Go over the teeth with an old file, and give them a more perfect cutting-edge. Then lay the blade flatly on a smooth board, and pass a fine-gritted whetstone along the sides of the points, to remove the wiry edge, and to give the teeth as fine a cutting-edge as practicable.

Screws and Nuts—To Loosen.

When you find screws and nuts have become fast from rust, pour on them a little kerosene or coal oil, and wait a few moments till they become soaked with liquid. When this is done, they can be easily started, and the bolt saved.

Screws—In Soft Wood.

Screws, when subject to strain, are apt to work loose in soft wood, and the screw-hole should be first filled with

thick glue. If no glue is handy, put powdered resin around the hole, and heat the screw before driving.

Seas—The Size of.

	Miles long.
Mediterranean	2,000
Caribbean	1,800
Red	1,400
Black	932
Baltic	600

Seed—Quantity Required for a given Number of Hills, or Length of Drill.

Asparagus, 1 oz. to 60 ft. drill; beet 1 oz. to 50 ft. drill; earrot, 1 oz. to 180 ft. drill; endive, 1 oz. to 150 ft. drill; onion, 1 oz. to 100 ft. drill; parsley, 1 oz. to 150 ft. drill; parsnip, 1 oz. to 200 ft. drill; radish, 1 oz. to 100 ft. drill; spinach, 1 oz. to 100 ft. drill; turnip, 1 oz. to 150 ft. drill; peas, 1 qt. to 100 ft. drill; dwarf beans, 1 qt. to 150 hills; eorn 1 qt. to 200 hills; cucumber, 1 oz. to 50 hills; watermelon, 1 oz. to 30 hills; muskmelon, 1 oz. to 60 hills; pumpkin, 1 oz. to 40 hills; early squash, 1 oz. to 50 hills; marrow squash, 1 oz. to 16 hills; eabbage, 1 oz. to 3000 plants; cauliflower, 1 oz. to 3000 plants; eelery, 1 oz. to 4000 plants; egg plant, 1 oz. to 2000 plants; lettuce, 1 oz. to 4000 plants; pepper, 1 oz. to 2000 plants; tomato, 1 oz. to 2000 plants.

Seed—Quantity Required for the Acre, and Actual weight of each to the Bushel.

	To the Lbs. acre. to bush.
Wheat, broadcast.....bushels...	1¼ to 2 60
Wheat, drilled.....bushels...	1½ 60
Rye, broadcast.....bushels...	1¾ 56
Rye, drilled.....bushels...	1½ to 1¼ 56
Oats, broadcast.....bushels...	2 33
Timothy, broadcast...gallons...	2 45
Red Clover, broadcast...gallons 3 to 4	60
White Clover, broadcast pounds 8	50
Lucerne, broadcast...pounds...	10 54
Herd or Red Top, broadcast bushels...	1 to 1½ 14
Blue Grass, broadcast...bushels...	1 to 1½ 14
Millet, broadcast.....bushels...	¾ to 1 45
Hungarian, broadcast...bushels...	¾ to 1 50
Corn in hills.....gallons...	1 to 1½ 56
Turnip and Ruta-baga..pounds 1	50
Onion Sets	pounds 28

Seed—Amount Required to Plant an Acre.

Kind of Seed	Quantity
Asparagus, in 12 inch drills	16 qts.
Asparagus plants, 4 by 1½ feet.....	8,000
Beets and mangold, drills 2g feet ..	9 lbs.
Broom corn, in drills	12 lbs.
Barley.....	2½ bush.
Beans, bush, in drills 2½ feet.....	1½ bush.
Beans, pole, Lima, 4 by 4 feet.....	20 qts.
Beans, Carolina, prolific, etc., 4 by 3 feet	10 qts.
Clover, white Dutch	13 lbs.
Clover, Lucerne	10 lbs.
Clover, Alsace	6 lbs.
Clover, large red with timothy	12 lbs.
Clover, large red without timothy ..	16 lbs.
Corn, sugar	10 qts.
Corn, field	8 qts.
Corn, solid, drill 10 inches	25 lbs.
Cucumber, in hills	3 qts.
Cabbage, outside for transplanting ..	12 ozs.
Cabbage, sown in frames	4 ozs.
Carrot, in drills 2½ feet.....	4 lb.
Celery, seed	8 ozs.
Celery, plant, 4 by ½ foot.....	25,000
Flax, broadcast	20 qts.
Grass, red top or heads	20 qts.
Grass, blue	28 qts.
Grass, rye	20 qts.
Grass, timothy with clover	6 qts.
Grass, timothy without clover	10 qts.
Grass, orchard	25 qts.
Lettuce, in rows 2½ feet	3 lbs.
Lawn grass	35 lbs.
Melons, water, in hills 8 by 8 feet ..	3 lbs.
Melons, citrons, in hills 4 by 4 feet ..	2 lbs.
Oats	2 bush.
Onion, in bed for sets	50 lbs.
Onions, in rows for large bulbs	7 lbs.
Peas, in drills, short varieties	2 bush.
Peas, in drills, tall varieties	1 to 1 bush.
Peas, broadcast	3 bush.
Potatoes	8 bush.
Parsnip, in drills 2½ feet	5 lbs.
Pepper	17,500
Pumpkin	2 qts.
Parsley, in drills 2 feet	4 lbs.
Radish, in drills 2 feet	10 lbs.
Rye, broadcast	1¾ bush.
Rye, drilled	1 bush.
Squash, bush., in hills 4 by 4 feet ..	3 lbs.
Tomatoes, in frames	3 ozs.
Tomatoes, seed, in hills 3 by 3 feet ..	8 ozs.
Tomatoes, plants	3,800
Turnips, in drills 2 feet	3 lbs.
Turnips, broadcast	3 lbs.
Wheat, broadcast	2 bush.
Wheat, in drills.....	1¼ bush.

Seed—How to Select.

It is of very great importance that the farmer, whose desire it is to have splendid grain and root crops, be very careful in his choice and selection of seed. He will see to it that they are large, plump, perfect and of uniform size. In the selection of many seeds it will pay the farmer to carefully examine with a powerful magnifying glass, and reject all that do not meet the above requirements,

Seed—Barley.

The best is that which is free from blackness at the tail, and is of a pale, lively yellow, intermixed with a bright, whitish cast, and if the rind should be a little shriveled, so much the better, as it indicates a very thin skin.

Seed Corn.

In shelling corn for seed, discard the butts and tips, using only the central portion of each ear, as the early blade and root are in size in proportion to the kernal used; and a plant from the large grains of the center of the ear will get the start and keep ahead of the small ones from the tip. And especially select from ears that have the grains as near uniformly large as possible.

Seed Oats.

Place your oats in a heap at the leeward end of the threshing floor on a day when a gentle breeze is blowing through the barn. Take a common wooden flour-scoop, and throw the oats against the wind, towards the other end of the floor. A few minutes' experience will enable you to throw them so that they will fall in a semi-circle at a nearly uniform distance from where you stand. The oats which fall farthest from you are the best for seed, and are to be carefully swept together as fast as they accumulate in considerable quantities.

Seed Potatoes.

Be careful to secure large, sound, and well-ripened seed; cut the large potato into pieces of one eye. Begin at the butt end; cut towards the center, leaving a due proportion of the potato with each eye. Potatoes inadvertently left undug, if they do not freeze during winter, invariably produce sound ones, larger and more abundant than those kept in the cellar through winter. This has lately suggested the plan of keeping potatoes excluded from the air from the time of digging

and planting, which has been found to invariably prevent rot.

Seeds—Length of Time they Retain their Vitality.

Vegetables.	Years.
Asparagus	2 to 3
Beans	2 to 3
Carrots	2 to 3
Celery	2 to 3
Corn (on cob)	2 to 3
Leek	2 to 3
Onion	2 to 3
Parsley	2 to 3
Parsnip	2 to 3
Pepper	2 to 3
Tomato	2 to 3
Egg Plant	1 to 2
Lettuce	3 to 4
Mustard	3 to 4
Okra	3 to 4
Rhubarb	3 to 4
Spinach	3 to 4
Turnip	3 to 6
Cucumber	8 to 10
Melon	8 to 10
Pumpkin	8 to 10
Squash	8 to 10
Broccoli	5 to 6
Cauliflower	5 to 6
Artichoke	5 to 6
Endive	5 to 6
Pea	5 to 6
Radish	4 to 5
Beets	3 to 4
Cress	3 to 4
Herbs.	Years.
Anise	3 to 4
Caraway	2
Summer Savory	1 to 2
Sage	2 to 3

Seed—How to Test the Vitality of.

By placing almost any of the larger seeds and grains on a hot pan or griddle, where the vitality is perfect the grain will pop, or crack open with more or less noise. Where the vitality is defective or lost, it lies immovable in the vessel.

Seed Wheat.

Seed wheat should not only be thoroughly cleaned from the seeds of weeds, but small grains should be taken out with a separator or suitable fanning mill, leaving only the largest, plumpest, and earliest ripened kernels.

Seed—To Improve All Sorts.

Charles Miller, son of the celebrated botanist, published a recipe for fertilizing seed, and tried it on wheat, by mixing lime, nitre, and pigeon's dung in water, and therein steeping the seed. The produce of some of these grains is stated at sixty, seventy and eighty stems, many of the ears five inches long, and fifty grains each, and none less than forty.

Servants—Treatment of.

There are frequent complaints in these days, that employes and assistants generally are unsatisfactory and deteriorating. If so what is the inference? Domestic servants, and assistants in business and trade, come closely and continually into contact with their employers; they are near them from morning till night, and see them in every phase of character, in every style of humor, in every act of life. How powerful is the force of example! Rectitude is promoted, not only by precept but by example, and, so to speak, by contact it is increased more widely. Kindness is communicated in the same way. Virtue of every kind acts with magnetic power; those who come under its influence imbibe its principles. The same with qualities and tempers that do no honor to our nature. If employes come to you bad, you may at least improve them; possibly almost change their nature. Here follows, then, a receipt to that effect:

Recipe for Obtaining Good Employes.

Let them observe in your conduct just the qualities and virtues that you

would desire they should possess and practice towards you. Be uniformly kind and gentle. If you improve, do so with reason and with good temper. Be respectable, and you will be respected by them. Be kind, and you will meet kindness from them. Consider their interests, and they will consider yours. A friend in an employe is no contemptible thing. Be to every employe a friend; and heartless, indeed, will be the employe who does not warm in love to you.

Sewing Machines—Hints on Using.

It is a fact known to all who use sewing machines that the prevailing difficulty is the breaking of the thread. Nearly all other disarrangements that occur, can usually be overcome by any person of ordinary ingenuity; even though they have had but a few weeks', or, perhaps, days', experience in the use of a sewing machine.

This breaking, which is mostly with the upper thread, may occur from an imperfect adjustment of the tension. With new machines this is invariably the cause; but with those that have been in use several months, the breaking (when the tension is right) is produced by the threads wearing into the guides, so that when a swelled place in the thread reaches the narrow groove which is worn to the exact width of the regular size of the thread, not being allowed to pass through, the thread breaks.

Of course this break may take place anywhere from the point of the needle back to the grooved guide which caught it. As it is usually at or near the end of the needle, the real cause is very generally overlooked. Many have been so troubled with this continual breaking that it has been necessary for them to lay aside their machines, when if this cause had been known to them, by simply smoothing the guide

holes with a small round file, their trouble would have ended.

Shampoo Liquid.

The simplest shampooing liquid is the best, and this is made by dropping borax, lump or powdered, into water until no more borax will dissolve. There is no danger of its getting too strong. This being applied to the hair makes a very good lather; wash out with clean water. When the hair has dried—if harsh—use a very little oil or sweet oil and eologne water mixed. A more elaborate wash or shampooing liquid is used by barbers. It is as follows: Carbonate of ammonia $\frac{1}{2}$ oz., carbonate of potash 1 oz., water 1 pint. Dissolve. Then add tincture of eantharides 5 fluid ounces, best alcohol 1 pint, rum three quarts, shake up well and let it stand a week before using; makes a good lather and stimulates the skin. Healthy skinned persons should not use it—their skin does not want stimulating it only wants cleansing.

Shaving Liquid.

White soap, 3 ounces; proof spirit, 8 ounces; distilled water, 4 ounces; carbonate of potash, 1 draehm; scented with essence of lemon. Dissolve the soap without heat, and add the potash and essence.

Another. — White soft soap, 16 ounces; oil of olives, $\frac{1}{2}$ oz.; gum benzoin, 1 draehm; rectified spirits, 24 oz., digest. Rub a few drops on the beard, followed by warm water.

Shaving Paste.

Melt together one draehm each of spermaceti, white wax, and almond oil; beat it up with 2 ounces of the best white soap, and add a little lavender or eologne water.

Shawls (Woolen)—Scotch Method of Cleaning.

Serape one pound of soap, boil it down in sufficient water. When cooling, beat it with the hand; it will be a sort of jelly. Add three tablespoon-

fuls of spirit of turpentine, and one of spirit of hartshorn. Wash the articles thoroughly in it. Then rinse in cold water until all the soap is taken off, then in salt and water. Fold between two sheets, taking care not to allow two folds of the article washed to lie together. Mangle, and iron with a very cool iron. Shawls done in this way look like new. Only use the salt where there are delicate colors that may fade.

Sheep, Age of—How to Tell.

The age of sheep may be known by examining the front teeth. They are 8 in number, and appear during the first year, all of a small size. In the second year the 2 middle ones fall out, and their place is supplied by 2 new teeth, which are easily distinguished, being of a larger size. In the third year, 2 other small teeth, 1 from each side, drop out, and are replaced by 2 large ones, so that there are now 4 large teeth in the middle, and 2 pointed ones on each side. In the fourth year, the large teeth are 6 in number, and only 2 small ones remain, one at each end of the range. In the fifth year, the remaining small teeth are lost, and the whole front teeth are large. In the sixth year, the whole begin to be worn; and in the seventh—sometimes sooner—some fall out and are broken.

Sheep and Lambs—Care and Management of.

Keep sheep dry under foot with litter. This is even more necessary than roofing them. Never let them stand in mud or in snow.

Do not starve them during the winter, but by an abundance of food keep them in good condition. A more painful sight than the flocks of many farmers, near the close of the winter, cannot be witnessed. When a farmer has more sheep than he can properly keep or sell, he should kill the surplus when winter sets in, even if he should get nothing from them but the pelts.

Furnish an ample supply of water, convenient of access, during the winter months.

Always try to avoid letting any of your sheep or lambs have any sudden change of food.

Take up lamb bucks early in the summer, and keep them up until the December following, when they may be turned out.

Drop or take out the lowest bars as the sheep enter or leave a yard, thus saving broken limbs.

Count every day.

Begin feeding grain with the greatest care, and use the smallest quantity at first.

If the ewe loses her lamb, milk her daily for a few days, and mix a little alum with her salt.

Let no hogs eat with the sheep, especially in the spring.

Give lambs a little milk feed in time of weaning.

Never frighten sheep, if possible to avoid it.

Furnish warm shelter for weak ones in cold weather, if possible.

Separate all those that are weak, thin or sick from those that are strong, in the fall, and give them special care.

If any one of your sheep is hurt, catch it at once and wash the wound; and, if it is fly-time, apply spirits of turpentine daily, and always wash with something healing. If a limb is broken bind it with splints, but not tight enough to interfere with the circulation of the blood.

Keep a number of good bells on the sheep.

Do not let the sheep spoil their wool with chaff or burrs.

Cut tag locks in early spring.

For scours, give pulverized alum in wheat bran; prevent by taking great care in changing dry for green feed.

If one is lame, examine the foot,

clean out between the hoofs, pare the hoof if unsound, and apply a wash of carbolic acid.

Shear at once any sheep commencing to shed its wool, unless the weather is too severe, and save carefully the pelt of any sheep that dies.

If sheep are given pine boughs once or twice a week they will create appetite, prevent disease, and increase their health.

Their general health during the grazing season will be promoted by giving the sheep tar, at the rate of a gill a day for every 20 sheep. Put the tar in a trough, sprinkle a little fine salt over it, and the sheep will consume it with eagerness.

The best sheep to keep, both for wool and mutton, is the American merino.

Sheep, Steers and Other Animals—To Prevent Jumping Fences.

Various devices have been resorted to in order to prevent such trespasses, and especially in regard to sheep, but none has succeeded, or only in a limited degree. The following is a good one, is not cruel or painful and will not greatly discommode the animal operated upon, and it is a remedy to the employment of which there can be no objection. It is to clip off the eyelashes of the under lids with a pair of scissors, and the ability or disposition to jump is as effectually destroyed as was Samson's power by the loss of his locks. The animal will not attempt a fence again until the eye-lashes are grown.

Sheep—Catarrh in.

The following is asserted to be a sure cure for this disease. Take a quill from a hen's wing, immerse the feather end in spirits of turpentine, run it up the nostril of the sheep the whole length of the feather end, and twist it round before withdrawing it; wipe

it off clean each time before immersing. One application will cure ordinary cases; the second or third, at intervals of 2 or 3 days, will cure the worst.

Sheep-killing Dogs.

If sheep are kept in the same lot with cows or fat cattle, dogs will not disturb them. As soon as the dogs approach them they run to the cattle, who drive off the dogs. This plan will usually be found effectual, but an additional safeguard is to put a good sounding bell on one of the sheep. If a little strychnine is put on a piece of meat (if tainted, the better) and left in the yards or vicinity of the sheep in the evening, if there be any dogs around they will be in a condition for a post-mortem examination. An excellent way to trap sheep-killing dogs, is to place the sheep they kill, or at least one of them, where the dogs have left it; then put four or six lengths of fence around the dead sheep, made of sawed scantling. Commence by laying the scantling on the ground, and as you lay them up, draw your scantling in the width of them every time around, and build the fence high enough in this way that a dog can not jump it. Then lock the corners well, and you have a pen that dogs can go over into from the outside readily, and when once over they cannot get out of it again until they are helped out. In this way, in a few nights, you will be quite likely to get the very same dogs that killed your sheep, as they will have the curiosity or desire to go over the ground the second time. It will be better to keep still about having your sheep killed, for if you make any search for the dogs you need not be at all surprised if you find that every man's dog is carefully shut up over night. It is not at all unlikely that the dogs will have had the blood stains washed from them, or any particles of wool removed from betwixt their

teeth, on their return home in the morning, after having been out over night engaged in sheep-killing.

Sheep—To Cure Foot-rot in.

Exposure in bad weather, but particularly from soft and low lands and wet pasturage. It never occurs on hard mountainous districts. The best mode of cure is that by arsenic. The moment you perceive that any of your sheep have become lame, pass them through a trough containing a warm solution of arsenic of about the following strength; 4 ounces of arsenic, four ounces of soda ash or potash, 1 gallon of water; boil till dissolved; keep it about 3 inches deep, so as to cover the foot as the sheep walk through; the trough should be about 20 feet long, and just wide enough to admit one sheep walking after the other. 3,000 sheep can be run through in about 3 hours; and this will result in a cure in every instance.

Sheep—Hay Racks for.

The cheapest and best rack for sheep can be made of 8 boards (4 long and 4 short ones) nailed to 4 posts, forming an inclosure 12 or more feet long, as the case may be, and 32 inches wide. The bottom board should be at least 10 inches wide and the top one need not be over 4, with a space between of from 6 to 8 inches, depending somewhat upon the size of the sheep that are to eat, standing with their heads thrust through this aperture.

Sheep—Inflammation of Lungs in.

This disease is caused by wet and cold pastures, chills after hard driving, washing before shearing when the water is at too low a temperature, shearing when the weather is too chilly and wet, and other circumstances of a similar description. Its first indication is that of a fever, hard and quick pulse, disinclination for food, ceasing

to chew the cud, unwillingness to move, slight heaving of the flanks, and a frequent and painful cough. The disease soon assumes a more aggravated form; but it is sufficient for the farmer to know the first stages of the malady, when he can pursue the course of treatment which experience determines best.

Sheep—Red Water in.

To cure this complaint take of Epsom salts 1 ounce, linseed oil 1 ounce, gentian 1 drachm, ginger 1 scruple, warm water 2 ounces. For a lamb give $\frac{1}{2}$ of this amount, but to a full-grown sheep the entire quantity. Foment the abdomen with warm water—a lamb, in fact, may be placed altogether in a warm bath. In cases of recovery a change of food must be afforded, and a short, sweet pasture should be preferred.

Sheep—Scab in.

This disease closely resembles the itch in man, and is caused by a very minute parasite called the scab mite. These creatures find no dwelling-place on healthy, clean-skinned sheep; but when they do find the requisite conditions they multiply with astonishing rapidity, and spread through the flock, and from flock to flock. The females burrow in the skin, and make little sores, in or under which they deposit their eggs, which hatch, and in a short time go to work producing themselves. The sores thus caused run together and form scabs; they make an intolerable itching, and the sheep bite and scratch themselves fearfully, tearing out their wool in patches over their bodies. The disease is sometimes an epidemic, and through whole regions the flocks suffer so terribly that government action has been necessary to prevent their extinction. The suffering animals become more and more emaciated; their wool falls off; their bodies are covered with nauseous scabby sores; their nervous

system is incapable of sustaining the pain, and its functions, with those of the skin, being deranged, the digestive organs sympathize, and the sheep finally die. The remedies for the scab are numerous, but the best discovered is the use of a solution of sulphuret of lime, as practiced in Australia, and is made as follows: Take 100 lbs. of flour of sulphur, 50 lbs. of lime, (quicklime, if possible, or a large proportion slaked,) and 100 gals. of cold water. Put these into a boiler. Keep them mixed by constantly stirring until they boil, and then keep boiling and stirring for about 10 minutes, until a clean, dark-brown, orange-tinted solution supervenes; then mix 1 gallon of this solution with 3 gallons of hot water, and make your dip or bath, heated to 100° or 114° of Fahrenheit, and plunge your sheep over head in it for about a minute. When they are dry the cure is complete; but to prevent the risk or reinfection, and to secure yourself against the chance of an imperfect muster, a second dip, after 10 days, in a bath of half the above strength will render assurance doubly sure. This better be done after the sheep is shorn; but even if the wool is long, it will not in the least degree injure the health of the animal or the fibre of the wool; but, on the contrary, by absorption it passes into and improves the constituents of the blood, and stimulates, through its action on the natural perspiration, the growth of the wool.

Sheep—Directions for Shearing.

The shearer may place the sheep on that part of the floor assigned to him, resting on its rump, and himself in a posture with his right knee on a cushion, and the back of the animal resting against his left thigh. He grasps the shears about half-way from the point to the bow, resting his thumb

along the blades, which gives him a better command of the points. He may then commence cutting the wool at the brisket, and, proceeding downward, all upon the sides of the belly to the extremity of the ribs, the external sides of both sides to the edges of the flanks, then back to the brisket, and thence upward, shearing the wool from the breast, front, and both sides of the neck, but not yet the back of it, and also the poll, or forepart, and top of the head. Then, "the jacket is opened," and its position, as well as that of the shearer is then changed, by the animal's being turned flat upon its side, one knee of the shearer resting on the cushion, the other gently pressing the fore-quarter of the animal to prevent any struggling. He then resumes cutting upon the flank and rump, and thence onward to the head. The sheep is then turned on the other side—in doing which great care is requisite to prevent the fleeces being torn; and the shearer proceeds as upon the first side. He must then take the sheep near to the door through which it is to pass out, and neatly trim the legs, leaving not a solitary lock anywhere as a lodging-place for ticks. It is absolutely necessary for him to remove from his stand to trim, otherwise the useless stuff from the legs becomes intermingled with the fleece-wool. In the use of the shears, the blades must be laid as flat to the skin as possible, the points not lowered too much nor should more than 1 or 2 inches be cut at a clip, and frequently not so much, but depending on the compactness of the wool.

Sheep—Stretches in.

A method that is recommended to cure this disease is as follows: Take 6 red peppers, boil them thoroughly, and give the juice, as hot as can be given, in doses of $\frac{1}{2}$ a pint at a time. This is to be followed by giving the

sheep plenty of exercise by running them about the fields for 5 or 10 minutes.

Shell Work.

This is very pretty for vases, frames, boxes, etc. Many shell flowers, animals, birds, and the like, are brought from the Mediterranean. We have seen some that we would like to own; but in general they have a stiff appearance. However, we will tell you how they are made.

Assort your shells according to size and color—the more rice and other small shells you have, the better. Melt white wax and glue together, two parts of the former and one of the latter. Have a clear idea of what you intend to do; or, what is better, make a pattern before you begin to set your shells. If you will ornament a box, a rose in the center looks well. Take thin round shells, those most resembling rose leaves, of the smaller size, and dipping the lower ends in the hot wax mixture, set them close together for the center of a rose; place other similar shaped shells around in circles, the largest outward. Care must be taken to form the shells into perfect circles, and to take up wax enough to make them adhere to the cover. Shells of different form, say more oblong, can be used for leaves. After arranging such figures as you like with the shells you have, fill up the spaces with the very small ones. Rice shells are the prettiest, but they are costly. Some prefer sticking the shells into a puttied surface, which does very well. Varnish with a very little copal varnish, using great care.

Shells—Etching.

It is done simply by means of acids. The parts not to be acted upon must be protected by a so-called etching ground, which is nothing but a thin layer of varnish blackened in a flame so as to see plainly the figures after-

ward drawn on it. Be careful when doing this to make a clear drawing or writing in which the shell is exposed at the bottom of every line, as any remaining varnish would protect those parts, and the writing would not be brought out. The acid, either strong acetic, diluted nitric, or hydro-chloric, is then applied, and when its action is sufficient it is washed off with water, the varnish is rubbed off with turpentine or alcohol; when the drawing or lettering will appear, and look as if cut in with an engraver's tool. You may also make your design with varnish on the shell by means of a fine brush, then the acid will dissolve the surface around the lines drawn, when the writing will appear in relief, the letters being elevated in place of being sunk in as by the former process. The latter is the more common way in which these shells are treated. This method is applied to many other objects; all that is wanted being a liquid dissolving the material to be acted upon, and a varnish to protect some parts from its action.

Shingles—To Prevent Decay of.

The following is said to effectually prevent the decay of shingles: Take a potash kettle, or large tub, and put into it 1 barrel of lye of wood ashes, 5 lbs. of white vitriol, 5 lbs. of alum, and as much salt as will dissolve in the mixture. Make the liquor quite warm and put as many shingles in it as can be conveniently wet at once. Stir them up with a fork, and, when well soaked, take them out and put in more, renewing the liquor as necessary. Then lay the shingles in the usual manner. After they are laid take the liquor that was left, put lime enough into it to make whitewash, and, if any coloring is desirable, add ochre, Spanish brown, lamp-black, etc., and apply to the roof with a brush or an old broom. This wash may be renewed from time to time. Salt and lye are excellent

preservatives of wood. It is well known that leach tubs, troughs, and other articles used in the manufacture of potash, never rot. They become saturated with the alkali, turn yellowish inside, and remain impervious to the weather.

Shingles—Fire-proof Wash for.

A wash composed of lime, salt, and fine sand or wood ashes, put on in the ordinary way of whitewashing, renders the roof 50 per cent. more secure against taking fire from falling cinders, in case of fire in the vicinity. It pays the expense a hundred fold in its preserving influence against the effects of the weather. The older and more weather-beaten the shingles, the more benefit derived. Such shingles generally become more or less warped, rough and cracked; the application of the wash, by wetting the upper surface, restores them at once to their original or first form, thereby closing up the space between the shingles, and the lime and sand, by filling up the cracks and pores in the shingle itself, prevents its warping.

Shoes and Boots—Care of.

These should be cleaned frequently, whether they are worn or not, and should never be left in a damp place, nor be put too near to the fire to dry. In cleaning them, be careful to brush the dirt from the seams, and not to scrape it off with a knife, or you may cut the leather. Let the hard brush do its work thoroughly, and the polish will be all the brighter.

Sick—Cautions in Visiting.

Do not visit the sick when you are fatigued, or when in a state of perspiration, or with the stomach empty, for in such conditions you are very liable to take the infection. When the disease is very infectious, take the side of the patient which is near to the window. Do not enter the room the first thing in the morning before it

has been aired, and when you come away take some food, change your clothes and expose them to the air for some days. Tobacco smoke is said to be a preventive of malaria; chloride of lime is certainly as good, if not much better.

Sight—Distance of.

Distance of sight varies with elevation, atmosphere, etc. On a clear day an object 1 foot high can be seen by an ordinary eye more than 1 mile off, one 10 feet high more than 4 miles off, one 100 feet high more than 13 miles, one 1 mile high about 100 miles. An ordinary man is not visible, even on a plain, at a distance of 5 miles, owing to the curvature of the earth.

Signatures—To Take Fac-Similes of.

Write your name on a piece of paper, and while the ink is wet sprinkle over it some finely-powdered gum arabic, then make a rim around it and pour on it some fusible alloy, in a liquid state. Impressions may be taken from the plates formed in this way, by means of printing ink and the copper-plate-press.

Silk—Gilding on.

Silks, satins, woollens, ivory, bone, etc., may be readily gilded by immersing them in a solution of nitro-muriate (ter-chloride) of gold (1 of the salt to 3 or 4 of water), and then exposing them to the action of hydrogen gas. The latter part of the process may readily be performed by pouring some diluted sulphuric acid on zinc or iron filings, in a bottle, and placing it under a jar or similar vessel, inverted, at the top of which the articles to be gilded are to be suspended.

The foregoing experiment may be very prettily and advantageously varied as follows: Paint flowers or other ornaments with a very fine camel's-hair pencil, dipped in the above mentioned solution of gold on pieces of silk, satin,

etc., and hold them over a Florence flask, from which hydrogen gas is evolved, during the decomposition of the water by sulphuric acid and iron filings. The painted flowers, etc., in a few minutes will shine with all the splendor of the purest gold. A coating of this kind will not tarnish on exposure to the air, or in washing.

Silk—Grease Spots from.

Upon a table lay a piece of woolen cloth, upon which lay smoothly the part stained, with the right side downwards. Having spread a piece of brown paper on the top, apply a flat iron just hot enough to scorch the paper. About five or eight seconds is usually sufficient. Then rub the stained part briskly with a piece of brown paper.

Silk—Restoring Color to.

When the color has been taken from silk by acids, it may be restored by applying to the spot a little hartshorn, or sal volatile.

Silks—To Renovate.

Sponge faded silks with warm water and soap, then rub them with a dry cloth on a flat board; afterwards iron them on the inside with a smoothing iron. Old black silks may be improved by sponging with spirits; in this case, the ironing may be done on the right side, thin paper being spread over to prevent glazing.

Silk, Black—Reviver.

Boil logwood in water for half an hour; then simmer the silk half an hour; take it out, and put into the dye a little blue vitrol, or green copperas; cool it, and simmer the silk for half an hour.

Silk—Washing.

No person should ever wring or crush a piece of silk when it is wet, because the creases thus made will remain forever, if the silk is thick and hard. The way to wash silk is to spread it smoothly upon a clean board,

rub white soap upon it, and brush it with a clean, hard brush. The silk must be rubbed until all the grease is extracted, then the soap should be brushed off with clean, cold water, applied to both sides. The cleaning of silk is a very nice operation. Most of the colors are liable to be extracted with washing in hot suds, especially blue and green colors. A little alum, dissolved in the last water that is brushed on silk, tends to prevent the colors from running. Alcohol and camphene, mixed together, are used for removing grease from silk.

Silk—Wrinkled.

To make silk, which has been wrinkled and tumbled, appear like new sponge it on the surface with a weak solution of gum arabic or white glue, and iron it on the wrong side.

Silk—To Remove Grease from.

A sure and safe way to remove grease stains from silks is to rub the spot quickly with brown paper; the friction will soon draw out the grease; or lay the silk on the table, with an ironing blanket under it, the right side of the silk downward; put a piece of brown paper on the top, and apply a flat iron just hot enough to sear the paper. We have found this receipt more efficacious than any scouring drops ever compounded.

Silver and Plated Ware—To Clean.

The following is taken from *Workshop Receipts*.—Take an ounce each of cream of tartar, common salt, and alum, and boil in a gallon or more of water. Plate washed in this solution when rubbed dry, puts on a beautiful silvery whiteness. Powdered magnesia may be used dry for articles slightly tarnished, but if very dirty it must be used first wet and then dry.

This ware should be washed with a

sponge and warm soapsuds every day after using, and wiped dry with a clean soft towel.

Silver—To give Lustre to.

Dissolve a quantity of alum in water, so as to make a pretty strong brine, and skim it carefully; then add some soap to it, and dip a linen rag in it, and rub over the silver.

Silver Ornaments—To Clean.

Boil them in soap and water for five minutes; then put them in a basin with the same hot soap and water, and scrub them gently with a very soft brush while hot; then rinse and dry with a linen rag. Heat a piece of common unglazed earthen ware, or a piece of brick or tile in the fire; take it off, and place the ornaments upon it for the purpose of drying them, and causing every particle of moisture to evaporate; as the moisture, which otherwise would remain on the silver, will cause it to tarnish, or assume a greenish hue. All ornaments, whether gold or silver, can be kept from tarnishing if they are carefully covered from the air in boxwood sawdust, which will also dry them after being washed.

Silver Plate—To Take Stains Out of.

Steep the plate in soap lees for the space of four hours; then cover it over with whiting, wet with vinegar, so that it may stick thick upon it, and dry it by a fire; after which rub off the whiting and pass it over with dry bran, and the spots will not only disappear, but the plate will look exceedingly bright.

Silver Stains—To Remove.

Put half a pound of Glauber's salts, quarter of a pound of the chloride of lime, and eight ounces of water, into a little wide-mouthed bottle, and when required for use pour some of the thick sediment into a saucer, and rub it well over the hands with pumice stone or a nail brush, and it will clean

the fingers quite equal to cyanide, but without any danger. This will do to use over again until exhausted and should be kept corked up. The disagreeable smell may be entirely avoided by the liberal use of lemon juice, which not only entirely removes the smell, but whitens the hands.

Silver—German

Is an alloy of copper, nickel, and zinc, and is used for spoons, forks, etc. It is affected by vinegar.

Silver—To Clean.

Never use a particle of soap on your silver ware, as it dulls the luster, giving the article more the appearance of pewter than silver. When it wants cleaning rub it with a piece of soft leather and prepared chalk, the latter made into a kind of paste with pure water.

Silver—Mixture for Cleaning.

Common prepared chalk, or whiting, $\frac{1}{2}$ lb.; gum camphor, $\frac{1}{4}$ oz.; aqua ammonia and alcohol, of each 1 oz.; benzine, 3 oz.; mix well together, and apply with a soft sponge, and allow it to dry before polishing.

Silver—To Keep Bright.

For the preservation of the luster of articles of silver or plated ware, when not needed for actual use for a considerable time, a coating of collodion (to be had at the drug stores), may be employed to great advantage. The articles are to be heated, and the collodion then carefully applied by means of a brush, so as to cover the surface thoroughly and uniformly. It is used most conveniently when diluted with alcohol, as for photographic purposes. Articles thus prepared exhibit no trace whatever of their covering, and have stood for more than a year in shop windows and in dwellings, retaining their white luster and color, while other pieces not thus prepared became seriously tarnished.

Silver—Frosted.

To produce a frosted surface on polished silver, use cyanide of potassium with a brush, but do not handle it more than you can help. Get a piece of lance wood or box, and make a pair of wood pliers. The proportion should be an ounce dissolved in a half pint of water. It is very poisonous.

Silver—Counterfeit.

Combine by fusion one part pure copper, twenty-four parts block tin, one and a half parts pure antimony, one-fourth part pure bismuth and two parts clear glass. The glass may be omitted save in cases where it is an object to have the metal sonorous.

Silver—German.

The best German silver may be made by melting together twenty-five parts copper, fifteen parts zinc and ten parts nickel.

Genuine German Silver.—Iron, $2\frac{1}{2}$ parts; nickel, $31\frac{1}{2}$ parts; zinc, $25\frac{1}{2}$ parts; copper, $40\frac{1}{2}$ parts; melt.

Fine White German Silver.—Iron, 1 part; nickel, 10 parts; zinc, 10 parts; copper, 20 parts; melt.

Silver—Imitation.

Copper, 1 lb.; tin, $\frac{3}{4}$ oz.; melt. This composition will roll and ring very near to silver.

Britannia Metal.—Copper, 1 lb.; tin, 1 lb.; regulus of antimony, 3 lbs.; melt together, with or without a little bismuth.

Pinchbeck.—Copper, 5 parts; zinc, 1 part; melt the copper, then add the zinc.

Jewelers' Metal.—Copper, 30 parts; tin, 7 parts; brass, 10 parts; mix.

Silvering.—A Bavarian has patented an improved process for silvering copper, brass and other alloys by use of a solution of silver in cyanide of potassium. The difference from the usual method consists in the use of zinc filings, with which the objects are coated; when the silvering solution is

applied, an immediate deposition of a much more durable character takes place. The filings are easily removed by rinsing in water, and may be used repeatedly for the same purpose. Metallic iron may be coated with copper in the same manner, by substituting for the silver a solution of copper in the cyanide; and over this copper deposit a coating of silver may be applied.

Skating—Hints on.

This delightful art affords the most appropriate outdoor exercise and amusement that can well be conceived for a winter day; like some other practical arts, however—swimming, for example—no amount of mere theoretical instruction will enable a person who knows nothing about it, so much as to stand with skates on upon the ice, much less to glide along its surface with the ease and grace of a skilful performer. What is required is really very simple, and is entirely of a practical kind. See that your skates are neither too large nor too small, that they fit your boot so tightly as to be immovable, and that the blades are sharp. Put them on and endeavor to stand on them on the ice. It is wonderful how speedily, and, as it were, instinctively, you will acquire the power of balancing yourself, and moving on the slippery surface. A fall or two may be unavoidable, but, like some of the evils of human life, they will be but a temporary inconvenience, bringing with them greater security as experience increases.

We have no intention of presenting our readers with an elaborate essay on the art of skating, but shall confine ourselves to a few useful hints. Without any minute descriptions of the instrument, a remark or two as to the "iron" or blade on which the skater stands may be made. Sometimes it

is made plane at the bottom, and sometimes it is fluted. In our opinion the plane surface is the better form.

The most convenient skates are those already screwed to a stout pair of high shoes such as ice-racers wear. If these are not used, a pair of strong straps will greatly aid in holding firmly the usual elampskates.

Presuming the skate securely fixed, and the shoe also tightly laced, the learner's first attempt must be to place himself in a perpendicular attitude on the ice. It may be said that his first *step* is to *stand*. The back of a chair placed before him, a stick shod with an iron spike, or the friendly hand of an experienced acquaintance, will be found in this primary effort of great use. When some tolerable degree of steadiness is acquired, some attempt at locomotion may be made, and in so adventurous an effort, especially if made by any of our fair readers, a vigorous arm to lean upon on each side, will be found a great comfort, till some degree of confidence is acquired, and will act the part which cork floats or bladders do towards the timid swimmer who suddenly finds himself "out of his depth."

If the learner intend to begin with his right foot, he ought to keep the left knee straight and firm, bending it only a little at the instant of striking out, and *vice versa* so acting with the left foot and right knee. The body ought to be slightly inclined forwards, of course, so as—in scientific language—to "keep the center of gravity over the base," the learner taking advantage of the friendly support on each side as he strikes out, and if such support is unattainable, making the best use he can of his stick, and submitting with his best grace to the inevitable necessity of a sudden obedience to the law of gravitation in the shape of a fall. The skater ought

never to look at his feet, nor at the ice near him, as by doing so, he is very apt to increase the number of his exploits in the way of tumbling, for it is unquestionable that he can keep his balance better by looking straight forwards than by fixing his attention on the movement of his feet; this, however, he will soon find by experience. It is remarkable that this rule is exemplified in intellectual and moral affairs; we are more likely to attain a successful result by giving our attention rather to the ultimate object in view, although it be remote, than by confining our prospects to each minute and, perhaps, difficult step which leads to it. The learner, while keeping his head up, ought to advance his body a little forward. By this means he will avoid a backward fall, which is often a serious mischance. The learner's face ought always to be turned in the direction to be followed. All movements in skating ought to be smooth and graceful, and quite free from jerking and awkward gestures.

The act of stopping is performed by slightly bending the knees, bringing the heels together and bearing upon them; it may also be accomplished by turning short to the right or left.

It is only requisite further to add, that the method of skating in certain figures is not difficult to acquire when proficiency in the art is attained; to furnish learners with precepts for those performances on the ice, which imply a large amount of experience, is hardly requisite, for the art of moving over the ice in figures is itself learned in the act of learning to skate.

Skins and Furs—Coloring and Dyeing.

Furs are dyed by dealers to suit some fashion, to conceal defects, or to pass off inferior furs for better ones. The best way is to brush the dye over the fur with a good sponge, brushing with

the hair. As a matter of course, you can only dye them of a darker color than they are, and retain the handsome lustrous look peculiar to fur. They may be bleached, but the process leaves the fur looking like coarse flax or even hemp.

Blue.—Sulphate of indigo (soluble indigo, sold by all druggists) is the readiest and best to get a blue with. Furs are never dyed blue for sale, for that would be spoiling a white fur, but sheep-skins are. The skin should be dipped several times in a bath of hot alum water; allowed to drain, and then dipped into a solution of sulphate of indigo and water, with a few drops of sulphuric acid added; this gives a pale blue. Aniline blue is very fine, and dyeing with it is very simple. A solution of the color in water is made, a hot solution, and the skin is put in all at once, (if a part of the skin is put in first that part will be darkest, so quick is the absorption of these colors.) Fancy sheep-skin mats, are colored blue, red, green and yellow, and have a ready sale, when they are new.

Black.—The best black is obtained by first dyeing the skin a blue. Then boil $\frac{1}{4}$ pound gall nuts, powdered, and $\frac{1}{4}$ ounce of logwood, in 3 gallons of water. If the flesh side is wanted blue, while the fur or wool is another, this decoration must be sponged on. Get the wool or hair, thoroughly impregnated with this and then add $\frac{1}{4}$ pound copperas, to the dye, and go over the fur or wool many times with the sponge. The process above given will answer without previous bluing, but the black is not so brilliant. Another "home made" dye, which will answer for dyeing clothes a black, as well as sheep-skins, is this: Make a bath of 8 ounces of bi-chromate of potash, 6 ounces alum, 4 ounces fustic; boil in water enough to cover 5 pounds of yarn, cloth, or a single sheep skin. Make another bath

of 4 pounds of logwood, 4 ounces each bar wood and fustic, or 8 ounces fustic, same amount of boiling water, as last; stir the goods well around in the first bath, keeping the water hot for an hour, then work it in the second bath the same length of time. Take them and wring them; then adding $\frac{1}{4}$ pound of copperas to the last bath, put the goods in again, and give them a good stirring. This is a good black dye for wool goods (or fur), but not for silks or cotton.

Red.—Furs, of course, are never dyed red, at least in this country. Sheep skins might be dyed with madder or cochineal. but in the former case, the skin would of necessity be boiled with the dye, as that is necessary in using madder. Cochineal would be expensive and require much working, while as brilliant reds and purples may be got from the aniline colors, dissolved in moderately warm water, the scum taken off, and skin dipped. These colors are the cheapest, too, as they go very far. But always have the wool as free from grease as possible by working in weak hot lye or hot soapsuds.

Yellow.—Can be got on sheep skins with black oak bark (quercitron bark), old fustic, annatto, and Persian (also called French) berries. The skins should be previously dipped into a bath of alum, cream of tartar or spirits of tin, about 2 ounces to the gallon. About $\frac{1}{2}$ pound of annatto, or 1 pound of the other articles, are enough for a single skin. If you wish to use fustic, be particular to ask for old fustic, as what is known in the trade as young fustic, is a different article and gives a different color. There is also an aniline yellow which works like the other colors.

Green.—Dye first blue as explained above, then pass through a yellow dye, until you get the shade

required. An alum bath, cream of tartar, or spirits of tin, as above, must be used before the blue is given.

Skins and Furs—Dressing and Tanning.

The cheapest and readiest, as well as the best method of dressing skins for use with the hair or wool on, is to first scrape off all the fat with a knife rather blunt on the edge, so as not to cut holes in the hide, upon a round smooth log. The log for convenience sake should have a couple of legs in one end, like a trestle; the other end should rest upon the ground. After the fat is well cleaned off, take the brains of the animal, or the brains of any other recently killed, and work them thoroughly into the hide. This renders the hide pliable. Then to preserve from the ravages of insects scatter on it some powdered alum and a little saltpeter. If the hair side has become greasy, a little weak lye will take it out. Sheepskins may be dressed, in the same way, though the wool should be cleaned with soapsuds before using the brains. Another way, but more expensive, is to use a paste made of the yolk of eggs and whiting instead of brains, working it in the same way, letting it dry and brushing off the whiting. Then add the powdered alum as before. Deerskins and even small calfskins are often tanned, as the process is called, with the hair on for garments. If it is desired to give the deerskin a yellow color, yellow ochre or chrome yellow may be used in combination with the brains or yolks of eggs, and afterwards brushed off.

If it is simply desired to preserve skins until they are sold, it is only necessary to dry them thoroughly. If the weather should be damp and warm salt the flesh side slightly with fine salt.

Skins—Preservatives for.

The best material for the preservation of skins of animals consists of pow-

dered arsenious acid, or the common arsenic of the shops. This may be used in two ways; either applied in dry powder on the moist skin, or, still better, mixed with alcohol or water to the consistency of molasses, and put on with a brush. Some camphor may be added to the alcoholic solution, and a little strychnine will undoubtedly increase its efficacy. There are no satisfactory substitutes for arsenic, but, in its entire absence, corrosive sublimate, camphor, alum, etc., may be employed. Many persons prefer the arsenical soap to the pure arsenic.

Arsenical Soap.—This is composed of the following ingredients: arsenic, 1 ounce; white soap, 1 ounce; carbonate of potash, 1 dram; water 6 drams; camphor, 2 drams. Cut the soap into thin slices, and melt over a slow fire with the water, stirring it continually; when dissolved, remove from the fire, and add the potash and arsenic by degrees; dissolve the camphor in a little alcohol, and when the mixture is nearly cold, stir it in.

The proper material for stuffing out skins will depend much upon the size of the animal. For small birds and quadrupeds, cotton will be found most convenient; for the larger, tow; for those still larger, dry grass, straw, sawdust, bran, or other vegetable substances, may be used. Whatever substance be used, care must be taken to have it perfectly dry. Under no circumstances should animal matter, as hair, wool, or feathers, be employed.

The bills and oral region, as well as the legs and feet of birds, and the ears, lips, and toes of mammals, may, as most exposed to the ravages of insects, be washed with an alcoholic solution of strychnine applied with a brush to the dried skin; this will be an almost certain safeguard against injury.

Skins (Small)—Stretching and Curing.

The market value of a skin is greatly affected by the care taken in removing it from the animal, and in drying it. The common way is to tack the skin to the barn-door and let it remain stretched until quite dry. The trapper in the woods, having no such convenience as the barn-door at hand, is obliged to resort to other methods. One plan is to dry the skin on a hoop. A skin to be dried in this manner must not be ripped down the belly, but it is cut from the lower jaw of the animal to just below its forelegs; the lips, eyes and ears being cut around, the skin is stripped off, leaving the fur side inward.

The hoop consists of a branch of hickory or other elastic wood, an inch through at the butt. This is bent and pushed into the skin, which is drawn tight, and fastened in place by notches in the bow, drawing the skin of the lip into these notches. A much neater way, and one generally preferred, is to use stretchers of thin wood. As these have to be carried by the trapper, they are made of light wood and very thin. They are three-sixteenths of one inch thick, 20 inches long, 6 inches wide at the larger end, and slightly tapering. They are rounded to a blunt point at the lower end, and the edges chamfered. The skin is drawn over the board, and secured with tacks. Skins stretched by either of these methods should not be dried in the sun nor by a fire, but in a cool place where they will be sheltered from the rain. No salt or other preservative is used upon skins intended for the market.

Skunks—To Trap.

Take an old barrel, and place it on its side on a triangular stick of wood about 7 inches high, fastening the bait on the bottom of the barrel. When

the skunk goes for this bait, as soon as he passes the centre, the barrel turns up with him, without making any scent. Then take it by the tail and do with it as desired. Care must be taken not to place the barrel too high, as it might throw over and not remain upright. The more skunks you catch in the same barrel, the better the trap.

Skunk Skins—To Deodorize.

To deodorize skunk skins or articles for clothing scented, hold them over a fire of red cedar boughs, and sprinkle with chloride of lime; or wrap them in green hemlock boughs, when they are to be had, and in 24 hours they will be cleaned.

Skin—To Whiten and Soften.

Take white wax (pure), 1 ounce; spermaceti, 2 ounces; oil of almonds, 9 ounces; melt together by a moderate heat in a glazed earthenware vessel, and add glycerine (best), 3 ounces; balsam of Peru, $\frac{1}{2}$ ounce. The mixture is to be stirred until nearly cold.

Another—Take a $\frac{1}{4}$ fluid ounce, each, of tincture of tolu, tincture of benzola, and tincture of balsam of Peru, and gradually mix with them a $\frac{1}{4}$ of a pint of distilled elder water, when a milky emulsive fluid will be the result. Then have, ready melted in a basin, $\frac{1}{2}$ an ounce of virgin wax and spermaceti, together with $\frac{1}{4}$ of a pound of almond oil—this is best done by placing the ingredients in a basin set in a small saucepan of boiling water, thus melting the materials by steam. Finally, the tincture and water mixture is to be gradually poured into the basin of oil, sperm, etc., beating the mixture rapidly with a fork, so as to insure perfect blending of all the ingredients. When finished, the unguent assumes a beautiful snow-white creamy consistency, which finally sets when quite cold. To whiten the hands, rub them over with this unguent on going to bed, and sleep in an old pair

of kid gloves. To prevent wrinkles and preserve the skin, apply the unguent at night, washing it off in the morning with cold cream soap. There is scarcely a wound, bruise, or skin-blotch but what it may be applied to with "safety and with success."

Sleep.

Sleep affords the interval during which the nervous energy expended in waking hours is renewed. Habit, age, temperament, and occupation have much effect upon the induction and maintenance of sleep in different people. The phenomena of dreams and somnambulism are examples of differing degrees of sleep in different parts of the cerebro-spinal nervous system.

Sleeplessness.

How to get sleep is to many persons a matter of high importance. Nervous persons who are troubled with wakefulness and excitability usually have a strong tendency of blood on the brain, with cold extremities. The pressure of the blood on the brain keeps it in a stimulated or wakeful state, and the pulsations in the head are often painful. Let such rise and chafe the body and extremities with a brush or towel, or rub briskly with the hands, to promote circulation and withdraw the excessive amount of blood from the brain, and they will often fall asleep in a few moments. A cold bath, or a sponge bath and rubbing, or a good run, or a rapid walk in the open air, or going up and down stairs a few times just before retiring, will aid in equalizing circulation and promoting sleep. These rules are simple and easy of application in all cases. Many people derive benefit from taking a tumbler of hot milk on getting into bed.

Slugs and Snails.

These are great enemies to every kind of garden plant, whether flower or vegetable; they wander in the night

to feed, and return at daylight to their haunts; the shortest and surest direction is: "Rise early, catch them, and kill them." If you are an early riser, you may cut them off from their day retreats, or you may lay cabbage leaves about the ground, especially on the beds which they frequent. Every morning examine these leaves, and you will find a great many taking refuge beneath; if they plague you very much, search for their retreat, which you can find by their slimy track, and hunt there for them day by day. Lime and salt are very annoying to snails and slugs; a pinch of salt kills them, and they will not touch fresh lime; it is a common practice to sprinkle lime over young crops, and along the edges of beds, about rows of peas and beans, lettuce and other vegetables; but when it has been on the ground some days, or has been moistened by rain, it loses its strength.

Smell, Bad in a Room—To Get Rid of.

Place a vessel full of lighted charcoal in the middle of the room, and throw on it two or three handfuls of juniper berries, shut the windows, the chimney, and the door close; twenty-four hours afterwards, the room may be opened, when it will be found that the sickly, unwholesome smell will be entirely gone. The smoke of the juniper berry possesses this advantage, that should anything be left in the room, such as tapestry, &c., none of it will be spoiled.

Smell of Paint—To Remove.

To get rid of the smell of oil paint, place a handful of hay in a pailful of water and let it stand in the room newly painted.

Smut in Wheat—Remedy for.

Soak the seed wheat in brine, and then dust it with unslaked lime. This will prove a perfect prevention.

Snares.

Snares are not very certain, but they are little trouble to make. They must be set in paths or runs of the birds it is intended to take. They are of horse hair or thin copper wire tied in a running knot. The tendency of every bird when it finds itself touched about the head is to push forward. This draws the knot tighter, until the bird kills itself.

Snipe—How to Shoot Successfully.

To the beginner no bird is more puzzling, and, therefore, more difficult to shoot. Its flight is most uncertain, most variable, and most irregular—rising at one time as evenly as a lark, and flying close to the ground with scarcely the slightest deviation from a straight line; at another, springing from the ground as if fired from a gun, and then flying in a zigzag course to the right or left, and, indeed, in every direction; and sometimes, again, rising to a great height, and then going straight away with the rapidity of lightning. And yet, with all these apparent difficulties, when the knack is once acquired, it becomes comparatively easy—indeed, is reduced almost to a certainty; the great art in this kind of shooting is coolness and to avoid too much hurry. And, in this, as in every other kind of shooting, the first sight is the best: the moment you are "well on" your bird, the trigger should be pulled. In cross-shots, fire well before your bird. Contrary to the usual practice, you should always walk down wind; the reason for this is that snipe always rise against it. Sometimes snipe are very wild, and at others will lie until they are almost trodden upon. If there be much wind, your best chance is to "down with them" as soon as they rise from the ground, or you have little hope of getting a bag.

Snow.

Snow answers many valuable purposes in the economy of nature, by feeding streams gradually, by tempering the burning heat of hot countries, and the cold in very cold countries, where it protects vegetation and gives shelter to animals. Each snow-flake is composed of minute crystals of ice, which usually adhere together, and therefore all the rays of light refracted or reflected so as to present individually the prismatic colors are scattered after reflection, and give to the eye the color sensation of "white."

Soap.

Soap is a composition resulting from the action of caustic alkali on animal or vegetable fats or oils, with or without the addition of resin. For hard or washing soaps a mineral alkali (soda) is used with fats rich in stearine, while for soft soaps a vegetable alkali (potash) is used with fluid oils, or the oleic acids extracted from solid fats. The addition of resin to hard soaps is made to improve the lathering qualities, and when the process is properly carried out is by far the best material for the purpose. Soap should be perfectly neutral, *i. e.*, contain neither excess of alkali nor grease—an excess of the former means destruction to the fabric washed, and of the latter, loss of detergent powers. The fats in general use for making soap are:

For Hard Soaps:

Tallow, Palm Oil, Cocanut Oil and Cotton-Seed Oil:

And for Low Qualities of Scouring Soap:

Any refuse grease.

For Soft Soaps:

Olive Oil and Oleic Acid.

And for Low Qualities:

Fish Oil,

Cotton Seed Oil,

Or any thin, poor Oil.

All fats are capable of being made into soap, even castor oil, but those given

above are most in use, and their respective qualities are understood by their position in the list. Glycerine is a "by-product" in the manufacture of soap.

Soap—Camphorated.

Sixteen ounces of white soap, eight ounces of boiling water, six ounces of olive oil and one drachm of powdered camphor; dissolve the soap in the water, evaporate slowly to the consistence of a soft paste, add the camphor incorporated with the oil, mix thoroughly and pour into moulds. It is excellent for chapped hands or lips and excoriations.

Soap—Carbolic Acid.

Take freshly prepared cocoanut oil soap, 150 parts, and fuse; then add a solution of alcohol, 10 parts; carbolic acid, 6 parts; caustic potassa, 2 parts; oil of lemon, 1 part, and mix with stirring. To be poured into moulds.

Soap, Chemical—for Taking Oil, Grease, etc., from Cloth.

Take 5 pounds Castile soap, cut fine; 1 pint alcohol; 1 pint soft water; 2 ounces aqua fortis; 2 ounces saltpetre; 3 ounces potash; 1 ounce camphor, and 4 ounces cinnamon, in powder. First dissolve the soap, potash, and saltpetre, by boiling; then add all the other articles, and continue to stir until it cools; then pour into a box and let it stand twenty-four hours and cut into cakes.

Soap—Cinnamon.

Palm oil-soap, 2 parts; good tallow soap, 3 parts. Reduce to shavings, then liquefy by adding a little water, and placing the mixture in a water bath until perfectly united; next cool to about 135° Fahr., and add finely powdered yellow ochre to color, and a sufficiency of the following perfume: Essence of cinnamon, 7 parts; essence

of bergamot, 2 parts; essence of sassafras, 1 part. Well mix the whole together and mould.

Soap—Floating.

Good oil soap $\frac{1}{2}$ cwt.; water $\frac{1}{2}$ gallon; melt by the heat of a steam or water bath in a pan furnished with an agitator, which must be assiduously worked until the soap has at least doubled its volume, when it must be put into the frames, cooled, and cut into pieces. Lathers well and is very pleasant. Any scent may be added.

Soap—Frangipanni.

Curd soap (previously colored light brown), 7 lbs; civet, $\frac{1}{4}$ oz.; otto of neroli, $\frac{1}{2}$ oz.; otto of santal, $1\frac{1}{2}$ oz.; otto of rose, $\frac{1}{4}$ oz.; otto of vitivert, $\frac{1}{2}$ oz. Rub the civet with the various ottos, mix, and beat in the usual manner

Soap—Fullers' Earth.

Curd soap, $10\frac{1}{2}$ lbs; marine soap, $3\frac{1}{2}$ lbs; fuller's earth (baked), 14 lbs.; otto of French lavender, 2 oz.; otto of origanum, 1 oz.

Soap, Gall—For Silken Cloth and Ribbons.

Gall soap, for the washing of fine silken cloths and ribbons, is prepared in the following manner: In a vessel of copper one pound of cocoanut oil is heated to 60° Fahr., whereupon half a pound of caustic soda is added, with constant stirring. In another vessel, half a pound of white Venetian turpentine is heated, and when quite hot, stirred into the copper kettle. This kettle is then covered and left for four hours, being gently heated, after which the fire is increased until the contents are perfectly clear, whereupon one pound of ox-gall is added. After this, enough good, perfectly dry Castile soap is stirred into the mixture to cause the whole to yield but little under the pressure of the finger; for which purpose, from one to two pounds of soap are required for the above quan-

tity. After cooling, the soap is cut into pieces. It is excellent, and will not injure the finest colors.

Soap Grease—To Preserve.

Boil all the scraps, rinds, and bones, in a weak lye, and the purer grease in clear water. Let the mixture cool, take off the cake of grease, and strain it. It is well to do this occasionally, as you save it; for when kept a long time, impure grease becomes offensive. You must be careful to dry off all the water before laying it away in your grease tub, if you wish it to keep sweet.

Soap Grease—To Purify.

If the grease is very foul in smell, it should be put in a boiler with water, on the fire (about three times as much water as of the grease), a small quantity (say a teaspoonful for five to ten pounds of grease) of permanganate of potash added, by stirring, to the whole, and after the mixture has cooled a little, it is strained through a cloth, and allowed to rest, when the cake of fat is taken out and put in a cool place, or in the pot in which it is to be remelted for transformation into soap. The purpose of the permanganate of potash is to remove the rank odor of the grease, which otherwise would contaminate the soap also.

Soap—Hard.

Take 6 pounds of sal soda, 6 pounds grease, and 3 pounds quicklime. Thoroughly mix the soda and lime in four gallons of water, pour off from the sediment, put in the grease and boil 20 minutes; pour off and before entirely cold cut in bars.

Soap—Labor-Saving.

Take two pounds of sal soda, 2 pounds of good soap, and 10 quarts of water. Cut the soap in thin slices, and boil together two hours; strain, and it will be fit for use. Put the clothes to soak the night before you wash, and to every pail of water in which you boil them, add a pound of

soap. They will need no rubbing; merely rinse them out, and they will be perfectly clean and white.

Soap—Liquid.

Sweet oil, 7 parts; caustic potash, 1 part; rose water, sufficient quantity to reduce it to a proper state. Rub the oil, alkali, and a few spoonfuls of the water together in a hot mortar until united, then add the remainder of the water as required.

Soap—Bayberry or Myrtle.

Dissolve $2\frac{1}{4}$ pounds of white potash in 5 quarts of water, then mix it with 10 pounds of myrtle wax, or bayberry tallow. Boil the whole over a slow fire till it turns to soap, then add a teacup of cold water; let it boil ten minutes longer; at the end of that time, turn it into tin moulds or pans, and let them remain a week or ten days to dry; then turn them out of the moulds. If you wish to have the soap scented, stir into it an essential oil that has an agreeable smell, just before you turn it into the moulds. This kind of soap is excellent for shaving, and for chapped hands; it is also good for eruptions on the face. It will be fit for use in the course of three or four weeks after it is made, but it is better for being kept ten or twelve months.

Soap—Bleaching.

This is a soda soap prepared according to the excellent prescription of the Prussian pharmacopœia, which prescription has been copied in almost all other works of the kind; the soap is separated by common salt, and after this one-fourth of its weight of sulphite of soda is added, which has been previously made into a homogeneous paste by means of a little water; the soap is next dried in the usual manner. In order to apply this soap, chiefly intended for the bleaching of straw hats, but perfectly fit for application to silk or wool, it is dissolved in its own

weight of cold water, and to every 2 lbs, of soap $\frac{1}{2}$ oz. of liquid ammonia is added. As soon as the mass has a gelatinous aspect, 1 part thereof is dissolved in 8 parts of warm water. The materials which it is desired to bleach are washed and scrubbed by means of a brush in this soap-suds; while yet moist, the materials are placed in acidulated water, (25 parts of water and $1\frac{1}{2}$ of hydrochloric acid); left in this liquid for 2 hours, and then well washed, and rinsed with pure cold water, and dried.

Soap—A good Toilet.

Palm oil soap and olive-oil soap, one part of each; curd soap, three parts. Melt them together and then scent with oil of verbena, ginger-grass, or rose geranium.

Soap—Orange Flower.

Palm soap, 2 parts; tallow soap, 3 parts. Melt them together and perfume with the following essences: Essence of Portugal, 8 parts; essence of amber, 7 parts. Mix. Color with the following, as required: Red lead, 5 parts; yellow green, 33 parts. Mix.

Soap—Palm (Superior).

Cut thin two pounds of yellow soap into a double saucepan, occasionally stirring it till it is melted, which will be in a few minutes, if the water is kept boiling around it; then add quarter of a pound of palm oil, quarter of a pound of honey, and six cents worth of true oil of cinnamon; let all boil together another six or eight minutes; pour out, and stand it by till next day. It is then fit for immediate use.

Soap—Shaving.

Good white soap (in thin shavings), 3 pounds; palm soap, 1 pound; soft water, $\frac{3}{4}$ pound; soda, 1 ounce. Melt carefully over a slow fire, in an earthen vessel, then add oil of lavender, 60 drops; oil of lemon, 40 drops; bergamot, 50 drops. Mix well, and make it into forms.

Another.—Take 3 lbs. white bar soap, 1 lb. castile soap, 1 quart rain water, $\frac{1}{2}$ pt. beef's gall, 1 gill spirits turpentine. Cut the soap into thin slices, and boil five minutes after the soap is dissolved, stir while boiling: scent with oil of rose or almonds. If wished to color it, use $\frac{1}{2}$ oz. vermilion.

Shaving Paste.

Naples soap (genuine), 4 oz.; powdered Castile soap, 2 oz.; honey, 1 oz.; essence of ambergris and oils of cassia and nutmegs, of each, 5 or 6 drops.

Another.—White wax, spermaceti and almond oil, of each, $\frac{1}{4}$ oz.; melt and while warm, beat in two squares of Windsor soap previously reduced to a paste with a little rose-water.

Another.—Take white soap, 4 oz.; spermaceti and salad oil, of each, $\frac{1}{2}$ oz.; melt them together, and stir until nearly cold. It may be scented at will. When properly prepared, these pastes produce a good lather with either hot or cold water, which does not dry on the face. The proper method of using them is to smear a minute quantity over the beard, and then to apply the wetted shaving brush, and not to pour water on them, as is the common practice.

Soap—A La Rose.

New olive oil soap 30 lbs.; new tallow soap 20 lbs.; reduce them to shavings by sliding the bars along the face of an inverted plane, melt in an untinned copper pan by the heat of steam or a water-bath, add $1\frac{1}{2}$ oz. of finely ground vermilion, mix well, remove the heat, and when the mass has cooled a little, add essence of roses 3 oz.; essence of cloves and cinnamon, of each, 1 oz.; bergamot $2\frac{1}{2}$ oz.; mix well, run the liquid mass through a tammy cloth, and pour it into the frames. If the soaps employed are not new, 1 or 2 quarts of water must be added to make them melt easily. Very fine.

Soap Bubbles—Large and Long-lasting.

For the production of unusually large soap-bubbles that will last for hours, and exhibit splendidly the beautiful colors of the rainbow, a fluid may be employed that can easily be prepared in the following way: Fine shavings of palm-oil soap are shaken in a large bottle with distilled water, until a concentrated solution of the soap is obtained; this is filtered through gray filtering paper, and mixed then with about one-third of pure glycerine. The fluid is to be shaken before use. By means of a small glass funnel, of two inches diameter, connected with a tube of India rubber, soap-bubbles may be prepared with this fluid that will vie in the beauty of the display of color with the rainbow itself, and which may be kept for a long while by putting them carefully upon an iron ring which is slightly rusty and thoroughly wet with the soap solution. Bubbles of one foot and more in diameter will keep from five to ten minutes; those of two or three inches in diameter, for hours—often for ten to twelve.

Soap—A Very Economical.

A very economical proceeding is to save all the scraps of broken pieces of soap and drop them into a tin can kept for the purpose, then dissolve three ounces of borax in two quarts of warm water, add two bars of good white soap shaved fine (if you have not saved the scraps), and stir all together in your jar until melted. When cool it will form a jelly. A tablespoonful of this will make a strong lather in a gallon of water, and will be good for cleaning any painted surface such as doors, windows, sills, etc., and for silver, matting, marble, oil-cloth, and will not fade any colors. In fact, there is nothing superior to this

home-made soap, and it is a very economical idea to save all the scraps and pieces of soap for this purpose.

Sofas and Ottomans.

Ottomans and sofas, covered with cloth, damask, or chintz, will look better for being cleaned occasionally with bran and flannel.

Soldering—Neat Mode of.

Cut out a piece of tinfoil the size of the surfaces to be soldered. Then dip a feather in a solution of sal ammoniac, and wet over the surfaces of the metal, then place them in their proper position with the tinfoil between. Put the metals thus arranged on a piece of iron hot enough to melt the foil. When cold the surfaces will be found firmly soldered together.

Solder—To Make Adhere to Brass or Copper.

Prepare a soldering solution in this way: Pour a small quantity of muriatic acid on some zinc filings, so as to completely cover the zinc. Let it stand about an hour, and then pour off the acid, to which add twice its amount of water. By first wetting the brass or copper with this preparation, the solder will readily adhere.

Solder—Common.

Put into a crucible 2 lbs. of lead, and when melted throw in 1 lb. of tin. This alloy is that generally known by the name of solder. When heated by a hot iron and applied to tinned iron with powdered resin, it acts as a cement or solder; it is also used to join leaden pipes, etc.

Solder—Hard.

Melt together 2 lbs. copper and 1 lb. tin.

Solder—Soft.

A strong, easily flowing and white solder is composed of lead one part, and tin 2 parts. When the lead

is melted up put in the tin, and then throw in a small piece of resin as a flux. In soldering fine work, wet the parts to be joined with muriatic acid in which as much zinc has been dissolved as the acid will take up. It is cleaner than the old method of using Venetian turpentine or resin. A method of making silver solder: Put into a clean crucible pure silver two parts, clean brass one part, with a small piece of borax; melt and pour into ingot. Formerly the solder was returned to the crucible for a second melting, but it is not necessary. The solder flows easily and clean. Solder made from coin, as it frequently is, often melts with difficulty, and remains lumpy around the joints, requiring the use of the file to remove it, while the addition of any of the inferior metals to the solder causes it to cat into the article joined by it.

Solder—Soft Articles to.

Moisten the parts to be united with soldering fluid; then, having joined them together, lay a small piece of solder upon the joint and hold over your lamp, or direct the blaze upon it with your blow-pipe until fusion is apparent. Withdraw then from the blaze immediately, as too much heat will render the solder brittle and unsatisfactory. When the parts to be joined can be made to spring or press against each other, it is best to place a thin piece of solder between them before exposing to the lamp.

Where two smooth surfaces are to be soldered one upon the other, you may make an excellent job by moistening them with the fluid, and then, having placed a sheet of tin foil between them, holding them pressed firmly together over your lamp till the foil melts. If the surfaces fit nicely a joint may be made in this

way so close as to be almost imperceptible. The brightest looking lead which comes as a lining to tin boxes works better in the same way than tin foil.

Solder—Silver.

Hardest.—Silver, 4 parts, copper, 1 part; fuse together.

Hard.—Sterling silver three parts, melt, add brass wire, 1 part.

Soft.—Silver, 2 parts, melt, add brass wire, 1 part. This is generally used; some add a little arsenic, to make it whiter and more fusible, but it becomes less malleable, and more injurious.

Pure tin, or tin solder (2 lead to 1 tin), used for inferior work.

Soldering, Soft—Liquid for.

A liquid for soldering tin, iron, or copper with soft solder, is obtained when the solution of zinc in muriatic acid is gradually heated, and then a proportionate quantity of oxide or carbonate of tin in powder is added to neutralize the liquid. The same will not corrode the seams like that made of zinc and acid alone. For a fine job on tin, stearic acid obtained from the candle factories is much preferable to resin, etc., and will not run off so easily from the soldering iron.

Soluble Glass, in Painting.

Soluble glass appears to furnish a means of applying certain colors to fresh wood, or clean iron, in a most efficient manner, and at a very slight cost compared with oil. It can also be used advantageously for painting houses, basket ware, decorations for theatres, etc., and is especially suitable in the latter case, as it renders wood incombustible to a certain extent, instead of increasing the danger from fire, as with oil paint. Care must, of course, be taken to use only such material colors as are not decomposed by

the glass, such as ultramarine, chrome green, Nuremberg green, yellow and red earth, ochre, green earth, terra de Sienna, etc. In coating paper with this paint, a little glycerine may be added to prevent its breaking. Coralline, Ponceau, and Vesuvine have also been used to advantage in connection with soluble glass.

Sorghum Culture.

The soil and climate suitable for the cultivation of corn is well adapted to the growth of sorghum, but a rich upland loam will yield the richest juice. The land should be well worked, and kept clean, it requiring about the same treatment as corn. It may be either planted in hills or drills. As the cane is a very deep-rooted plant, it is very essential that the land should be made mellow to a good depth, but the seed should be covered very shallow, not more than half an inch deep. It should be planted about the same time as corn. The young plants when they first come up look like blades of fall grass; they are of slow growth and feeble appearance for some time, or until the hot weather of July and August, when the plants will go far ahead of corn in a rank and healthy growth. It appears to delight in hot, dry weather, as its roots penetrate deep. Drought does not affect it as it does corn; it is surprising to see at what a rate it will develop itself after the hot weather has come. It is also very hardy, and may be transplanted with entire safety. There is a difference of opinion in regard to keeping the suckers pulled off. Experience shows that, although we may lose a little in quantity, it is more than made up in the quality of the syrup; therefore have a deep, mellow soil for the roots to penetrate in search of food by thoroughly cultivating it

during the early stage of its growth; but avoid deep plowing after the cane has once acquired considerable size, as the roots then fill the ground, and if severed the plants are greatly dwarfed; keep the suckers off, and be sure and not let a weed show its head.

Sorrel—To Remove.

This field pest may be eradicated by the judicious application of either lime or ashes. The souring principle of sorrel is oxalic acid; if this be removed from the soil, sorrel cannot grow. Lime or potash unite with the oxalic acid, forming oxalate of lime or potash. These substances are sometimes called sweeteners of the soil, from their ability to remove acids from it. Sorrel will never grow on lime soil.

Sorry—You Will Never Be

For doing good to all; for speaking evil of none; for hearing before judging; for thinking before speaking; for holding an angry tongue; for being kind to the distressed; for asking pardon for all wrongs; for being kind towards everybody; for stopping the ears to a tale-bearer; for disbelieving most of the ill reports.

Sows Near Farrowing — Treatment of.

During the whole period of pregnancy sows should be moderately well fed, but not to produce too much fat, as this will reduce the number of the litter, or risk their being smothered by their unwieldy dam lying down on them. As farrowing approaches, the food must be semi-liquid or gently laxative, since costiveness at this period fosters fever, and hence sows devour their offspring. Gentle exercise is beneficial to all pregnant healthy animals, and for this the pen should be roomy. It is best to protect the sow against

injury from other pigs. The pen should be airy and clean, and, until the last day or two of pregnancy, comfortably littered. As the time approaches, or when uneasiness, or the piling of litter for a bed, shows its near advent, clear out the pen, and cover it with a thin litter of chaff only. This is necessary to prevent smothering the pigs, particularly if the sow be large or fat. Soon remove the pigs when they are brought forth, helping them away until after the after-birth. In all circumstances the after-birth should be removed at once. However natural it may be for the wild animal to devour this, the practice, if permitted among domesticated swine, develops the propensity to devour their offspring. A drink of milk, gruel, or Indian or oatmeal and hot water, will be at once grateful and supporting to the sow during and after parturition; and as soon as the secretion of milk is freely established, the diet should be abundant, soft and laxative. The pen should be kept clean. The litter of chaff should be of a limited amount for a week, until the pigs are better able to protect themselves.

Spatter Work

Is rather a trick than an art, but yet is artistic enough to require the exercise of taste and judgment. If you have any old kitchen dresser or table considered utterly worthless and only fit for firewood, a skillful hand at spatter work can make it an attractive piece of furniture which will fill its place for fifty years longer and be admired by all who behold it. An old round walnut table, scratched, defaced and apparently ruined, was thoroughly cleaned with sandpaper, and spattered with a wreath of maple leaves. It had a branch in the center and the claws were spattered to match. It is now

the most ornamental object in a handsome drawing room. A smaller table in a still more dilapidated condition was made so beautiful by spatter work that it sold for \$13 and was thought cheap at the price.

Directions for a Beginner.—The following are some simple directions for a beginner:

First, gather the loveliest ferns and leaves you can get, a plentiful supply if you are going to ornament a large piece of furniture. Take a big book with heavy covers and press your specimens at once, keeping them as perfect in shape as possible. From old magazines cut out with great precision designs of birds, beasts and flowers. Buy a common kitchen nail brush, like a little scrubbing brush, two or three hard tooth brushes, also a few good brushes such as painters use for putting on varnish; get a fine timothy sieve, such as is used by farmers for sifting timothy grass seed. If you cannot find this, a piece of very fine wire cloth will do, stretched on a frame. Get a few pens, coarse and fine, both. Do not omit any of these things if you wish to have good work.

Buy 5 cents worth of burnt umber, in the powder, and a quart of malt vinegar. Secure some bits of new board for the first trial and do not attempt a piece of furniture till you have had some practice, for the hand being in has much to do with success in this as in other handicrafts. Buy some fine white varnish (sometimes called damar), at least a quart, that you may not run short at a critical moment.

Having all your materials at hand, lay your picture design first of all face down on the wood, then arrange your ferns and leaves, and fasten this under layer very firmly with pins; the upper ones may be thrown on more carelessly. Cover the wood well and thickly in the second layer.

Now mix a large earthen saucer full

of umber and vinegar; a tin vessel will not do. Stir till quite smooth, a thin liquid. Select your brush, take your sieve, be careful to put a very little liquid on the brush, and rub away rapidly on the sieve above the design. The color should fall through the sieve like fine rain. When the ferns are quite wet, carefully remove some of the upper ones. Spatter again, then gently pull out some of the under ferns, just over the ground design; this requires a light hand. Finally, after spattering a little more, take off all but the ground design fastened on with the pins, which is left till quite dry.

If you have never before seen such work you will be delighted with the result, for it is a perfect reproduction of nature in ferns and leaves.

Suppose your picture design is a field mouse; of course it is only in outline. Dip your pen in brown India ink and mark in the eyes and whiskers; in a word, complete the sketch. Your mouse will now appear as if peeping from under the ferns. When perfectly dry varnish with great care the whole work. The varnish will take a day or two to dry. Any kind of wood looks well, spattered; but holly and box are the best for minute designs.

A nursery paneled with spatter work would be charming for little children—the story of “Red Riding Hood,” “Babes in the Woods,” or “Cock Robin” on the walls among the ferns and leaves.

In my opinion spatter on wood is yet in its infancy, and because it is such a beautiful, interesting and cheap mode of decoration, I think much will be done with it yet.

Speaking—Faults in.

Faults in speaking are generally of five kinds. (1) Inexperience often makes a speaker either too loud or too low. (2) Negligence or nervousness makes him indistinct. (3) The for-

mation of the mouth helps to make him too slow or too rapid. (4) An unmusical ear makes him too uniform or too irregular. (5) Affectation makes him adopt a peculiar intonation-e.g., the drawling lisp of sentimental curates.

Speed of Birds.

Speed of birds has been estimated at 150 miles an hour for a hawk, 120 for a swift, 100 for a crow, 90 for an eider duck, 80 for a swallow, 60 for a rook, 40 for a pigeon. The pigeon is not nearly so fast as is generally supposed, but is very strong on the wing and has immense powers of endurance.

Spelling—Hints on.

The following rules will be found of great assistance in writing, because they relate to a class of words about the spelling of which doubt and hesitation frequently occur.

All words of one syllable ending in *l*, with a single vowel before it, have double *l* at the close; as, mill, sell.

All words of one syllable ending in *l*, with a double vowel before it, have one *l* only at the close: as, mail, sail.

Words of one syllable ending in *l*, when compounded retain but one *l*, each: as, fulfil, skilful.

Words of more than one syllable ending in *l* have one *l* only at the close: as, delightful, faithful; except befall, downfall, recall, unwell, etc.

All derivatives from words ending in *l* have one *l* only: as equality, from, equal; fulness, from full; except they end in *er*, or *ly*; as mill, miller; full, fully.

All participles ending in *ing*, from verbs ending in *e*, lose the *e* final; as, have, having; amuse, amusing; unless they come from verbs ending in double *e*, and then they retain both; as, see, seeing; agree, agreeing.

All adverbs ending in *ly* and nouns in *ment* retain the *e* final of the primitives; as, brave, bravely; refine, refine-

ment; except truly, acknowledgment, etc.

All derivatives from words ending in *er* retain the *e* before the *r*; as, refer, reference; except hindrance, from hinder; remembrance from remember; disastrous from disaster; monstrous from monster; wondrous from wonder; cumbrous from cumber, etc.

Compound words, unless they both end in *l*, retain their primitive parts entire; as millstone, changeable, graceless; except always, also, deplorable, although, almost, admirable, etc.

All words of one syllable ending in a consonant, with a single vowel before it, double that consonant in derivatives; as sin, sinner; ship, shipping; big, bigger; sad, sadder, etc.

Words of one syllable ending in a consonant, with a double vowel before it, do not double the consonant in derivatives; as sleep, sleepy; troop, troopers.

All words of more than one syllable ending in a single consonant, preceded by a single vowel, and accented on the last syllable, double that consonant in derivatives; as, commit, committee; compel, compelled; appal, appalling; distil, distiller.

Nouns of one syllable ending in *y*, preceded by a consonant, change *y* into *ies* in the plural; and verbs ending in *y*, preceded by a consonant, change *y* into *ies* in the third person singular of the present tense, and into *ied* in the past tense and past participle; as, fly, flies; I apply, he applies; we reply; we replied, or have replied. If the *y* be preceded by a vowel, this rule is not applicable; as, key, keys; I play, he plays; we have enjoyed ourselves.

Compound words whose primitives end in *y*, change *y* into *i*; as, beauty, beautiful; lovely, loveliness.

Sponge—To Clean.

Take two or three ounces of carbonate of soda, and dissolve it in a couple

of pints of water. After having soaked the sponge in this for a day, wash it thoroughly in clean water; after which immerse it for a couple of hours in three pints of water, and a wineglassful of muriatic acid. Then rinse it in cold water and let it dry. Sponges, after being used, should always, if possible, be dried in the sun.

Sponge—To Bleach.

Soak the sponge in very dilute muriatic acid to remove calcareous matter; then in cold water, changing it frequently, and squeezing the sponge out each time. Then soak it in water, holding a little sulphuric or sulphurous acid, or chlorine in solution, changing the acid frequently till the sponge is sufficiently bleached. Last, repeatedly wash and soak in clean water, and scent with rose or orange-flower water.

Sponge Paper.

For the fabrication of an article called sponge paper, patented in France, evenly and finely divided sponge is added to ordinary paper pulp, and this is worked as in the common paper-making apparatus, into sheets of different thicknesses. It is said to have all the peculiarities of sponge, absorbing water readily, and remaining moist a long time. It has been used as dressing for wounds with considerable advantage and is capable of several important technical applications.

Spots, Grease—To Remove.

Take benzine, 20 ounces; alcohol (strong), 5 ounces; ether, 2 drachms; ammonia, 1 drachm.

Javelle Water.—Take bleaching powder, 1 ounce; carbonate of potassa, 1 ounce; water, 33 ounces. Triturate the bleaching powder in the cold with 25 ounces of water, then add the carbonate of potassa, previously dissolved in the rest of the water, shake well and let it settle. The supernatant liquor is fil-

tered, if necessary, and mixed with one ounce of hydrochloric acid, when it is ready for use.

Spots (Grease)—To take out of Silk.

Take a lump of magnesia, and rub it wet over the spot; let it dry, then brush the powder off, and the spot will disappear; or, take a visiting card, separate it, and rub the spot with the soft internal part, and it will disappear without taking the gloss off the silk.

Squash—Cultivation of.

The squash, being a tropical vegetable, requires much care and attention in northern latitudes in order to be cultivated with success. Of all the varieties tested, the "Hubbard" has proved to be the very best for winter. The planting should be done as early in the spring as possible after the weather becomes sufficiently warm, so that there will be no danger of frost nipping the young plants, as they are very tender. A few hills can be planted earlier, and covered with hay or straw when there is danger of frost; in fact, if the season is late, it will pay well to plant a goodly patch and protect them in that way, for a very few young plants will cover a wide space of ground when old.

The land should be made deep and rich, the richer the better, particularly in the hills; the best manure being composted hen-droppings. The soil should contain a sufficient amount of sand to make it quick and warm, and a piece of land should be selected sloping well to the south so that the rays of the spring sun can be quickly felt by the young plants.

Plant in rows at least sixteen feet apart, in hills from eight to ten feet, putting from two to three seeds in a hill, and when well started thin out to one plant. Cultivate thoroughly all the ground between the rows, as well

as around the plants, until the vines cover the ground. If the above hints are followed, a good crop will result.

Squinting.

This frequently arises from the unequal strength of the eyes, the weaker eye being turned away from the object to avoid the fatigue of exertion. Cases of squinting of long standing have often been cured by covering the stronger eye and thereby compelling the weaker one to exertion, or correcting the eyes with properly selected glasses.

Squirrels—How to Manage.

In a domestic state these little animals are fed with hazel nuts, or indeed any kind of nuts; and occasionally bread and milk. They should be kept very clean.

Squirrels—To Trap.

In trapping squirrels, set a steel trap on the upper rail of a fence near where they frequent; set a pole with an ear of corn, or some other squirrel food fastened to the end of it, up against the side of the fence, leaning in such a position as to spring the bait over the trap at a height of six or nine inches; when the squirrel reaches to get the bait he will get into the trap.

Squirrel Skins—To Tan.

Place them in a vessel with strong wood ashes. Wet the ashes till they will make a mortar. Leave them in about nine days, or until the hair can be pulled off; take them out and remove the hair. Then place them in strong, soft soap six days; then remove and wash them in cold water till all the soap is out of them. When nearly dry, rub them with the hands till dry.

With the Hair On.—Place the hide on a smooth, round sided slab, made for the purpose, with two legs in one end, and let the other end rest on the ground; drive a nail in the upper end

to hold the skin from slipping while fleshing. Scrape off all the flesh with a blunt knife, being careful not to tear the hide. Then take the brains of the squirrel and work them thoroughly into the skin; this renders the skin pliable. Then scatter on some powdered alum and a little saltpetre. Let dry; then stretch and work it until as pliable as may be desired.

Stain (Black)—For Wood.

Pour two quarts boiling water over one ounce of powdered extract of logwood, and, when the solution is effected, one drachm of yellow chromate of potash is added and the whole well stirred. It is then ready for use as a wood-stain or for writing ink. When rubbed on wood, it produces a pure black. Repeat with two, three or four applications, till a deep black is produced, which acquires the highest beauty when polished.

Stain, Blue.

Solution of sulphate of indigo is used hot, and while hot, a solution of cream of tartar 3 ounces, in water, 1 quart.

Another.—A solution of verditer is brushed over until the wood appears a dark green, and then a solution is applied of pearlash, 2 ounces in boiling water, 1 pint.

Stain, Cherry.

Take rain water, 3 quarts; anatto, 4 ounces; boil in a copper kettle until the anatto is dissolved; then put in a piece of potash the size of a common walnut, and keep it on the fire about half an hour longer, and it is ready for use. Bottle for keeping.

Stain, Ebony.

Take a solution of sulphate of iron, and wash the wood over with it two or three times; let it dry, and apply two or three coats of a strong decoction of logwood; wipe the wood when dry with a sponge and water, and polish with oil.

Stain, Purple.

Logwood, one pound; Brazil wood, 4 ounces; water, 1 gallon; boil three hours, brush it on while hot, and when dry, use a solution of pearl ash, 1 dram, in water, 1 quart.

Stain—Red.

Water, 1 gallon, Brazil wood, 1 lb.; pearl ash, 1 oz.; boil for 3 hours, brush it hot over the wood, and then, while wet, brush the wood with a solution of alum, 2 ozs., in water, 1 quart.

Light.—Add to each gallon of the last 2 ozs. more pearl ash.

Dark.—Logwood, 8 ozs.; water, 2 quarts; boil till of a deep color, and add carbonate of potash, $\frac{1}{2}$ oz.; brush it hot over the wood.

Stain—For Floors.

To strong lye of wood-ashes add enough copperas for the required oak shade. Put this on with a mop, and varnish afterwards.

Stains, Ink—To Take Out

Ink or iron-mold stains from white goods, wet with milk and cover with salts of lemon (if available) or common salt. To remove egg stains from spoons, rub them with whiting. Buttermilk will take out mildew stains.

Stains of Nitrate of Silver—To Remove.

Grimm states in a German journal that chloride of copper completely removes nitrate of silver stains from colored cotton cloth. It should afterward be washed with hyposulphite of soda, and then thoroughly washed with water. Such stains are more effectually removed from white cotton or linen cloth, by applying to it a dilute solution of permanganate of potash and hydrochloric acid, which is to be followed by washing with hyposulphite of soda and plain water. This process renders the use of the highly poisonous cyanide of potassium unnecessary.

Stains, Medicine—On Silver Spoons

May be removed by rubbing them with a rag dipped in sulphuric acid, and washing it off with soapsuds.

Stammering—To Cure.

No stammering person ever found any difficulty in singing. The reason of this is that by observing the measure of the music—by keeping time—the organs of speech are kept in such position that enunciation is easy. Apply the same rule to reading or speech, and the same result will follow. Let the stammerer take a sentence, say this one—‘Leander swam the Hellespont’—and pronounce it by syllables, scan it, keeping time with his finger if necessary, letting each syllable occupy the same time, thus, Le—an—der—swam—the—Hel—les—pont, and he will not stammer. Let him pronounce slowly at first, then faster, but still keeping time, keeping time with words instead of syllables, and he will be surprised to find that, by very little practice, he will read without stammering, and nearly as rapidly as persons ordinarily talk or read. Then practice this in reading and conversation until the habit is broken up. Perseverance and attention are all that are necessary to perform a perfect cure.

Starch—From frosted Potatoes.

Potatoes much frosted will make very good starch, though it is a dark shade in color. All coarse clothes requiring to be stiffened, where whiteness is no object, may be done with starch made from potatoes greatly penetrated with frost. The best method of making potatoes into starch is to grate them down into water, then to take out all the refuse with the hand, and next to strain the whole of the water in which the potatoes have been grated through a thin cloth, rather coarse, or fine sieve, and afterwards frequently putting on and

pouring off water until it comes clear from the starch, which is always allowed to settle or fall to the bottom of the vessel in which the operation is performed. An experiment was tried with a few potatoes that were put out to frost. They were grated down and made into starch powder. The produce of the fresh potato weighed 876 grains, while that of the frosted was only 412, being less than half the quantity.

The refuse of the potato, when taken from the sieve, possesses the property of cleansing woolen cloths without hurting their colors, and the water decanted from the starch powder is excellent for cleansing silks without the smallest injury to their color. In making hair-powder it has long been used, and is therefore well known.

Starch—Gum Arabic—To Renew Muslin, etc.

Procure two ounces of fine white gum arabic and pound it to powder. Next put it into a pitcher, and pour on it a pint or more of boiling water, according to the degree of strength you desire, and then, having covered it, let it set all night. In the morning, pour it carefully from the dregs into a clean bottle, cork it, and keep it for use. A tablespoonful of gum water stirred into a pint of starch that has been made in the usual manner will give to lawns (either white or printed) a look of newness to which nothing else can restore them after washing. It is also good (much diluted) for thin white muslin.

Steel Articles—To Preserve from Rust, When not in Use.

Sleigh runners, skates, etc., which are only used for a limited time during the year, may be effectually preserved from rust by a coating of common lard and pulverized black lead, containing a little camphor.

Steel—To Remove Rust from.

This can be done by a free application of kerosene oil, allowing the oil to remain on until the rust is loosened, and can be rubbed off.

Steel, Bright—To Preserve from Rust.

After bright grates have been thoroughly cleaned, they should be dusted over with unslaked lime, and thus left until wanted. Coils of piano wires, thus sprinkled, will keep from rust for many years. Table-knives which are not in constant use ought to be put in a case in which sifted quicklime is placed, about eight inches deep. They should be plunged to the top of the blades, but the lime should not touch the handles.

Steel knives that are not in general use may be kept from rusting if they are dipped in a strong solution of borax water, one part water to four parts of borax; wipe dry, roll in flannel and keep in a dry place.

Steel Goods—To Preserve.

Caoutchouc, 1 part; turpentine, 16 parts. Dissolve with a gentle heat, then add boiled oil, 8 parts. Mix by bringing them to the heat of boiling water; apply it to the steel with a brush, in the way of varnish. It may be removed when dry with turpentine. The oil may be wholly omitted.

Steel—Tempering.

Giving the proper degree of hardness to tools is a subject of deep interest to most of our readers, so that any light that may be imparted on the subject must be of importance. For tempering many kinds of tools, the steel is first hardened by heating it to a cherry red, and plunging it into cold water. Afterward the temper is drawn by moderately heating the steel again. Different degrees of hardness are required for different purposes,

and the degree of heat for each of these, with the corresponding color, will be found in the annexed table:

Very pale straw-color, 430 degrees—the temper required for lancets.

A shade of darker yellow, 450 degrees—for razors and surgical instruments.

Darker straw-yellow, 470 degrees—for penknives.

Still darker yellow, 490 degrees—chisels for cutting iron.

A brown yellow, 500 degrees—axes and plane-irons.

Yellow, slightly tinged with purple, 520 degrees—table-knives and watch-springs.

Steel—To Color Blue.

The steel must be finely polished on its surface, and then exposed to a uniform degree of heat. Accordingly, there are three ways of coloring: First, by a flame producing no soot, as spirits of wine; secondly, by a hot plate of iron; and thirdly, by wood-ashes. As a very regular degree of heat is necessary, wood-ashes for fine work bears the preference. The work must be covered over with them, and carefully watched; when the color is sufficiently heightened, the work is perfect. This color is occasionally taken off with a very dilute muriatic acid.

Steel—To Remove Bluing from.

Immerse in a pickle composed of equal parts muriatic acid and elixir vitriol. Rinse in pure water and dry in tissue paper.

Steel—Scaling.

The scales on steel articles can be removed by pickling in water with a little sulphuric acid in it, and when the scale is loosened, brushing with sand and a stiff brush.

Steel (Burnt)—To Restore.

Borax, 3 oz.; sal ammoniac, 8 oz.; prussiate of potash, 3 oz.; blue clay, 2 oz.; resin, 1½ lb.; water, 1 gill;

alcohol, 1 gill. Put all on a fire, and simmer till it dries to a powder. The steel is to be heated, and dipped into this powder, and afterwards hammered.

Steel—To Toughen.

Resin 2 lbs.; tallow 2 lbs.; black pitch 1 lb.; melt together, and dip the steel in when hot.

Steel—Annealing.

For a small quantity. Heat the steel to a cherry red in a charcoal fire, then bury in sawdust, in an iron box, covering the sawdust with ashes. Let stay until cold.

Another.—For a larger quantity, and when it is required to be very “soft.” Pack the steel with cast iron (lath or planer) chips in an iron box, as follows:

Having at least ½ or ¾ inch in depth of chips in the bottom of box, put in a layer of steel, then more chips to fill spaces between the steel, and also the ½ or ¾ inch space between the sides of box and steel, then more steel; and, lastly, at least one inch in depth of chips, well rammed down on top of steel. Heat to and keep at a red heat for from two to four hours. Do not disturb the box until cold.

Steel—To Distinguish from Iron.

The principal characteristics by which steel may be distinguished from iron, are as follows:

After being polished, steel appears of a whiter light gray hue, without the blue cast exhibited by iron. It also takes a higher polish.

The hardest steel, when not annealed, appears granulated, but dull, and without shining fibres.

When steeped in acids the harder the steel is, of a darker hue is its surface.

Steel is not so much inclined to rust as iron.

In general, steel has a greater specific gravity.

By being hardened and wrought, it

may be rendered much more elastic than iron.

It is not attracted so strongly by the magnet, as soft iron. It likewise acquires magnetic properties more slowly, but retains them longer; for which reason, steel is used in making needles for compasses and artificial magnets.

Steel is ignited sooner, and fuses with less degree of heat than malleable iron, which can scarcely be made to fuse without the addition of powdered charcoal; by which it is converted into steel, and afterwards into crude iron.

Polished steel is sooner tinged by heat, and that with higher colors than iron.

In a calcining heat, it suffers less loss by burning than soft iron does in the same heat, and the same time. In calcination a light blue flame hovers over the steel, either with or without a sulphurous odor.

The scales of steel are harder and sharper than those of iron; and consequently more fit for polishing with.

In a white heat, when exposed to the blast of the bellows among the coals, it begins to sweat, wet, or melt, partly with light-colored and bright, and partly with red sparkles, but less crackling than those of iron. In a melting heat, too, it consumes faster.

In the sulphuric, nitric, and other acids, steel is violently attacked, but is longer in dissolving than iron. After maceration, according as it is softer or harder, it appears of a lighter or darker gray color; while iron on the other hand is white.

Steel Articles, Small—Bluing.

Having a quantity of charcoal ashes on an iron plate, or in a box, place over the fire and heat slowly. Put the articles to be blued in the ashes, and as they get heated, take out occasionally to see how the color is drawing. When the color is a blue, do

not take them out, but leave them until they have become white again, when they should be taken out and allowed to cool. Now, by returning the articles and reheating you will have the "second blue." The first blue will rub off easily, the second blue will wear quite a long time, but in order to get a good color, the article should be highly polished, and free from grease of any kind, and in no case should the articles be dipped in oil or water, before or after bluing, unless you wish to spoil the color.

Another.—Give the pieces a bright fine polish, and lay them in a sheet-iron pan, with some slaked lime. Set the pan over a forge, or in any place where you can regulate the heat, and watch them carefully until they have the right color. If the steel be good, they will take on a bright vivid blue.

Steel Ploughs—Blue (Transparent) for.

Take damar varnish $\frac{1}{2}$ gal.; finely ground Prussian-blue $\frac{1}{2}$ oz.; mix thoroughly. For ground steel plows, or other ground steel, one or two coats of this will be found sufficient to give a nice blue appearance, like highly tempered steel; some may wish a little more blue; if so, add the Prussian blue to your liking.

Stock—Live.

The breeding of live stock is absolutely necessary to a perfect system of farming. Without live stock to convert the grain and grass of a farm into products which add to the value of these crops, and at the same time makes the smallest draft on the resources of the farm in the way of plant-food, it is impossible to maintain fertility without resorting to the costly chemical fertilizers.

There has never been a time in the history of our country when grain and hay fed to live stock did not bring more money than they would if they

had been sold in the market in their natural state.

Assuming that we need not argue the advisability of keeping live stock, the only matter that remains to be settled, is:

Stock, Live—What Class of Shall We Keep?

This is a matter that must depend largely on the nature of the land, the demand of the most available market, and the kind of crops that can most profitably be grown. Something depends also on the man who is called upon to decide. Personal predilections should be consulted, for the man who likes cattle and does not like sheep will never be as successful with sheep as he will with cattle. Again, while sheep do well where the herbage is thin and short, cattle require a more plentiful supply of feed. Where fencing is an object, cattle can be held by a much cheaper fence than is required to hold a flock of sheep, as two or three wires will hold cattle, while twice as many will not hold sheep.

Cattle and Sheep in many places do equally well and may be kept on the same farm with profit. In other places hogs and cattle would do better than sheep and cattle, and in a great many cases hogs, cattle, and sheep may be kept with gratifying success.

In the great corn belt, where hogs are, and always will be, an important product, cattle seem to be the best live stock to keep in connection with them, as the cattle will make better use of the coarse corn stalks than would sheep. It may be set down as a general rule that wherever hogs are kept cattle should also be kept, but the reverse of this is by no means true and there are millions of acres on the great ranges of the West where cattle thrive, that are not as yet fitted for breeding hogs.

In the North and Northwest portions of the country, horses, cattle and sheep are very profitable, but hogs are not suited to these sections, because the grain produced in them is too high priced to allow feeding hogs with at a profit.

Thus it will be seen that no general rule can be laid down that will apply with equal force to every section of the country. The best rule in such cases is to be guided by the experience of those who have bred live stock in the particular locality under consideration or in localities where similar conditions obtain.

Pure-bred Stock.—No matter what class of live class is selected it should always be pure-bred. The day of the "pennyroyal" steer, "razor-back" hog and "native" sheep is a thing of the past. The man who desires to receive the greatest benefit from his live stock will breed only that which has good blood flowing in its veins.

Improved Stock.—Where it seems impossible for any reason to begin with pure-bred stock, every effort should be made to improve the quality of that which is available, and to this end only pure-bred sires should be used. By a consistent course of breeding to pure-bred sires the most unpromising native stock may in a few years be greatly improved and made much more profitable.

Pure-bred stock is the result of many years' skilful and patient effort on the part of breeders; it has been bred with a certain purpose in view and from generation to generation the best for this purpose has been selected until there is an inherited tendency, strongly fixed, to breed true to certain valuable characteristics and produce just what the breeder is striving for.

So successful have breeders been in fixing types that pure-bred animals may be counted on with almost absolute certainty to produce progeny that

is true to type in every way, and marvelous improvements have been made on the original stock. This is true of every class of live stock. Cattle have been bred to produce beef in some breeds and milk that is rich in butter fat in other breeds. Sheep have been bred to produce superior mutton in the case of the English breeds, and to produce very heavy fleeces of wool in other breeds. One breed of horses has been bred for speed and all of the race is speedy. Another breed has been bred to massive size and is capable of pulling loads which the race-horse could not move. The hog has been so improved that the six-months-old pig weighs more than did his ancestor at eighteen months.

Pure-bred animals are more profitable than "scrubs," not only because they mature at an earlier age, but because they assimilate the feed they consume to better purpose, making more weight from a given amount and putting the added weight where it is most valuable.

Take the massive, square-built Short-Horn of to-day and compare him with the native Mexican bullock. While the Short-Horn has heavy hams, thick loins and deep shoulders, the Mexican has bony hams and shoulders, thin loins, and a large percentage of his weight is made up of his paunch, which is of no value in the market.

Assuming, then, that breeding live stock is necessary to the greatest success in farming and that pure-bred stock is infinitely better than that which is of no particular breeding, we come to the question of the particular breed of the various classes that should be selected.

The Question of Breed will never be settled as long as men are not of one mind. The Short-Horn, the Hereford, the Polled Angus, the Galloway, the Polled Durham and other breeds

have admirers who are ever ready to extol their merits and champion their cause. As a matter of fact there is no danger of making a mistake in choosing any of these breeds, if the object is the production of beef, for they are equally hardy, equally capable of making great weight and equally desirable when placed on the market in first-class condition.

For the production of milk, butter or cheese, there is the same opportunity for choice and the same diversity of opinion among the champions of the various dairy breeds. The Jersey, the Guernsey, the Ayrshire, the Holstein-Friesians, the Dutch Belted cattle, the Brown Swiss and other breeds make it easy to select as fancy dictates in shape and color and at the same time get cows that return large profits to their owners, and so with all other live stock. (See Cows.)

Stock—Cooking Food for.

The great profit of steaming food to feed to stock is, that it converts much of the woody fibre of hay, straw, etc., into soluble, fat-forming nutriment. It is commonly supposed that, as cattle chew the cud, all the nutriment is extracted from the hay, fodder, grain, etc., eaten. So far from this, nothing short of boiling or its equivalent, steaming, can convert woody fibre into soluble nutriment. The same rule is applicable to grain, potatoes, and roots generally; heat is essential to dissolving the starch of grains and roots to render it available, as well as to dissolve the elements out of woody fibre. The heat of the animal system, together with the gastric juices, perform but imperfectly, the same that steaming or cooking does. Experience and careful experiments have demonstrated that a very much larger proportion of food is assimilated into the system if cooked, than if fed uncooked.

Stock—Food for.

The following table shows the number of pounds of various products used as food for stock, which are equivalent in value to 10 pounds of hay.

Food.	Pounds.
Barley.	5 to 6
Cabbage.	20 to 30
Carrots, red.	25 to 30
Carrots, white.	40 to 45
Clover, green.	45 to 50
Indian corn.	5 to 7
Mangel Wurzel.	30 to 35
Oats.	4 to 7
Oil Cake	2 to 4
Peas and Beans.	3 to 5
Potatoes.	20 to 25
Straw, barley.	20 to 40
Straw, oat.	20 to 40
Straw, pea.	10 to 15
Straw, wheat.	40 to 50
Turnips.	45 to 50
Wheat.	5 to 6

Stock—Comparative Value of Different Food for.

One hundred pounds of good hay for stock are equal to

Articles.	Pounds.
Beets, white silesia.	669
Turnips.	469
Rye Straw.	429
Clover, red, green.	373
Carrots.	371
Potatoes, kept in pit.	350
Oat Straw.	317
Potatoes.	360
Carrot Leaves (tops).	135
Hay, English.	100
Lucerne.	89
Clover, red, dry.	88
Buckwheat.	78½
Corn.	62½
Oats.	59
Barley.	58
Rye.	53½
Wheat.	44½
Oil Cake, linseed.	43
Peas, dry.	27½
Beans.	28

Stock—Cotton Seed for.

Very many farmers believe that cotton seed for stock is superior to corn, and ample experiment seems to confirm this view. To cook cotton seed, take a large kettle, which holds from 5 to 6 bushels, set it upon a brick furnace, fill it with cotton seed fresh from the gin, and then fill up the kettle with water, and boil something less than ½ an hour; then empty the seed into troughs, and admit the cattle and hogs to them. The milk and butter have none of that cotton-seed taste which the green or uncooked seed give. Both cattle and hogs will keep in good order winter and summer on seed thus prepared; and when you are ready to fatten pork, you have only to add an equal quantity of cotton-seed and corn, and boil as above. Experience has proved that it will fatten much sooner and be equally good as when fattened on corn alone. Your cows will give an abundance of milk all winter when fed in this manner, with but 1 bushel of corn to 4 of cotton-seed.

Stock—Thorley's Condimental Food.

The advertisements of the patentees of this preparation would lead to the belief that their "cattle food" contains more real nourishment than the ordinary kinds of food which have hitherto been given; but chemical analysis shows the incorrectness of these statements. There is no secret in the composition, for the test is at hand in a simple analysis. The following is an ordinary formula to make 1 ton of the meal: Take of Indian meal 900 weight, locust bean finely ground 600 weight, best linseed cake 300 weight, powdered tumeric and sulphur of each 40 lbs., saltpetre 20 lbs., licorice 27 lbs., ginger 3 lbs., aniseed 4 lbs., coriander and gentian of each 10 lbs., cream of tartar 2 lbs.,

carbonate of soda and levigated antimony each 6 lbs., common salt 30 lbs., Peruvian bark 4 lbs., fenugreek 22 lbs. The reader will observe that the chief ingredients are corn meal, locust bean, and linseed cake; these form its bulk, and constitute nine-tenths of the whole, the remainder being made up of "condiments." There can be no doubt whatever that the nutritive materials which the compound contains are purchased at an enormous expense, and really do not pay for the purchase.

Stockings (Woolen)—To Wash.

If new, soak all night, then wash in hot suds with beef's gall, a table-spoonful to half a pail of water. Rinse till no color comes out. Then stretch on stocking frames, or iron them when damp on the wrong side.

Stone—Artificial.

The best process, according to the method of Sorel, of making artificial stone, consists in mixing magnesia cement with suitable material; with sand it gives brick; with flint, whetstones and oil-stones; with kaolin, ornaments of all kinds, statuettes, etc.; with sawdust it gives a good material for covering floors; with carbonate of lime imitations of marble.

The cement is applied in a liquid form, and the mass sets in a few hours. The magnesia must be carefully calcined and the materials well mixed.

Stone—Artificial.

White.—Alum, 1 lb.; water, 1 gal. Dissolve, then steep in this liquor calcined gypsum, $\frac{3}{4}$ cwt. Next dry for eight days in the open air, and calcine at a dull, red heat; grind and sift and form into a paste with water; when hard apply a thin layer of the above paste over the surface with a brush; when quite hard, polish with pumice, etc., in the usual way.

Cream Color.—Alum, 1 pound;

copperas, $\frac{1}{2}$ pound; water, 9 pints. Dissolve, and proceed as before.

Stone Façade—To Clean.

It has been ascertained that the jet of water thrown from a steam fire-engine has the power of removing the discoloration produced by the smoke, without injuring the face of the stone. The work is done from the ground, the force of the stream thrown by the steam fire-engine being sufficient to effect the necessary cleansing.

Stoneware, (English)—To Manufacture.

Tobacco-pipe clay is beaten much in water; by this process the finer parts of the clay remain suspended in the water, while the coarser sand and other impurities fall to the bottom. The thick liquid, consisting of water and the finer parts of clay, is further purified by passing it through hair and lawn sieves of different degrees of fineness. After this the liquor is mixed (in various proportions for various ware) with another liquid of the same density, consisting of flints calcined, ground and suspended in water. The mixture is then dried in a kiln, and being afterwards beaten to a proper temper, it becomes fit for being formed at the wheel into dishes, plates, bowls, etc. When this ware is to be put into the furnace to be baked, the several pieces of it are placed in the cases made of clay, called seggars, which are piled one upon another, in the dome of the furnace; a fire is then lighted. When the ware is brought to a proper temper, which happens in about 48 hours, it is glazed by common salt. The salt is thrown into the furnace through holes in the upper part of it, by the heat of which it is instantly converted into a thick vapor, which, circulating through the furnace, enters the seggar through holes made in its side (the top being covered to prevent the salt

from falling on the ware), and attaching itself to the surface of the ware, it forms that vitreous coat upon the surface which is called its glaze.

Stove Blacking.

Blacking for stoves may be made with $\frac{1}{2}$ a pound of black lead finely powdered, and (to make it stick) mix with it the whites of 3 eggs well beaten; then dilute it with sour beer or porter till it becomes as thin as shoe-blackening; after stirring it, set it over hot coals to simmer for 20 minutes; when cold it may be kept for use.

Stoves—Gas.

These are very useful, and the simpler the stove the better. They are cleanly and very little trouble. With even a cheap stove, one can bake, fry, and boil.

Some stoves cook by hidden gas, in others the food is exposed to the jets. In the case of the circles of jets used in boiling, care must be exercised in selecting a stove in which the top plate does not come down too close on the jets, as then a sufficient quantity of gas cannot be turned on without causing a flattening of the flame by the bottom of the saucepan, and thus spread an unpleasant smell in the house.

If the stove is properly regulated, and the gas turned off when not in use, it will be quite as cheap as using coal, and much dirt and trouble will be avoided.

Stoves—To Mend Cracks in.

Take equal parts of wood ashes and common salt, and mix them to a proper consistence with water; with this fill the cracks.

Stoves—To Keep from Rust.

Kerosene applied with a cloth to stoves will keep them from rusting during the summer. It is also an

excellent material to apply to all iron utensils used about a farm.

It is well to know that the mica windows of coal stoves can be easily cleaned with a soft rag dipped in vinegar and water. This should be done when putting the stove away.

Strawberry Culture.

For this fruit the most suitable soil is light and sandy. It may be enriched by ashes, bone, barnyard manure, etc. The plants should be set one foot apart, in rows two feet from each other. Put in the young plants from the middle of August to the middle of September. Keep the ground mellow and free from weeds. In the following spring manure and hoe the ground well, to keep it moist and free from weeds. With such care, a quart of fruit has sometimes been picked from one plant, the next season after planting. Some cultivators prefer to cut off all the blossoms the first spring, so as to strengthen the plants for growth.

Strawberry Plants—Protecting.

In latitudes where snows fall about the first of December, and remain on the ground all winter, no other protection to strawberry plants is needed; but in all other sections of the country, some slight covering is necessary, as poor hay, straw, leaves, or the coarse barn-yard litter, that is always thrown out of stables with manure. For garden plats of plants barn-yard litter, mixed with manure, is the best protection that can be used, acting as a fertilizer at the same time, by being drenched with rain. In field cultivation of strawberries, near the ocean, salt hay makes a cheap and good protection. Rye straw is very good, but more expensive than salt hay. The plants should be covered but slightly, about two inches deep with whatever may be used. If it is put on thicker

there is liability to smother the plants. Early in December is a good time to mulch strawberry plants, if not done before.

Straw Hats—To Bleach.

Straw hats which have turned yellow may be bleached by the use of a soap prepared by taking any good soda soap and precipitating it from its solution by means of common salt, and adding to it one-fourth the weight of sulphate of soda, previously rubbed into a mass with water, then drying the product. About equal parts, by weight, of water are to be poured upon this, and for every two pounds of soap, half an ounce of spirits of sal ammoniac is to be added; and after the whole has assumed a gelatinous consistency, one part of the mass is to be dissolved in eight parts of warm water; smaller proportions of the foregoing will, of course, answer for a few articles. The objects to be bleached are to be washed by means of a brush in this solution, and transferred, while still moist, into water acidulated with hydrochloric acid (twenty-five parts water to one and a half of acid), and allowed to remain a few hours in this liquid. They are then to be washed with fresh cold water, and dried. Experiment has proved the results of this method of bleaching to be exceedingly satisfactory.

Straw Hats or Bonnets— To Clean.

The bonnets may be washed with water, and dried in the air. They must then be washed over with white of an egg, well beaten. The wire must be removed before washing.

Straw Hats or Bonnets—To Dye Chestnut Brown.

For twenty-five straw hats: 1 pound and a half of ground sanders, 2 pounds of ground cureuma, three-quarters of a pound of powdered gall nuts, or

sumac, one-tenth of a pound of rasped logwood. These ingredients are allowed to boil in a kettle with the straw hats; the boiler, however, must be large enough so that the hats are not pressed against each other. After two hours' boiling the hats are withdrawn, rinsed, and allowed to remain over night in a bath of nitrate of iron of 4 degrees Baume, when they are washed. A darker brown may be obtained by increasing the quantity of sanders. When dry, the hats are brushed with a brush of dogs' (couch) grass, in order to give them the desired luster.

Straw Hats or Bonnets—To Dye Black.

For twenty-five straw hats: They are put in a boiling bath of four pounds of logwood, one pound of gall nuts, or sumae, and one half pound of curcuma, or fustic. The hats are allowed to remain therein for two hours. They are hereupon immersed in a bath of nitrate of iron of four degrees Baume, when they are carefully rinsed in water, dried, and brushed.

Straw and Chip Hats—To Varnish Black.

Best alcohol 4 oz.; pulverized black sealing-wax 1 oz.; put them into a vial, and put the vial into a warm place, stirring or shaking occasionally, until the wax is dissolved; apply it when warm by means of a soft brush, before the fire or in the sun.

It gives stiffness to old straw hats or bonnets, makes a beautiful gloss, and resists wet; if anything else is required, just apply it to small baskets also, and see how nicely they will look.

Straw Hats or Bonnets—To Dye Silver Gray.

For twenty-five straw hats: In order to produce this color, the whitest hats must be selected; they are first softened in a bath of crystallized soda, to which

some clear lime-water has been added. As dye-bath, the following decoction is used, and the hats are kept therein under constant boiling. The recipe for the bath is four pounds of pure alum, three-eighths of a pound of tartaric acid, some ammoniacal cochineal, or carmine and indigo; a little sulphuric acid may be added to this decoction according to necessity. The sulphuric acid is employed in order to neutralize the alkali of the cochineal dye. When the last mentioned ingredients are made use of, the hats are allowed to remain for an hour longer in the boiling bath, when they are rinsed in slightly acidulated water.

Straw Matting—To Clean.

Use a large coarse cloth dipped in salt water, then wipe it dry. The salt prevents the matting from turning yellow.

Stuffed Animals—To Clean.

First brush the specimen well with a clothes-brush. Then put some new bran into a pan and warm it, stirring it well to prevent it burning. Rub the warm bran well into the fur with your hand. Do this three or four times, and then brush the fur until all the bran is out.

Stumps—To Remove.

One method is as follows: In the fall of the year bore a 1-inch hole 18 inches deep into the center of the stump and put in an ounce of saltpetre, filling up with water, and plugging the hole up. In the spring take out the plug, put in half a gill of kerosene and set fire to it. It will burn the stump out to its farthest root. Here is another plan: In the fall, with an inch auger bore a hole in the centre of the stump 10 inches deep, and put into it a $\frac{1}{2}$ lb. of vitriol, and cork the hole up very tight. In the spring the whole stump and roots extending all through their ramifications will be found so rotten that they can be easily destroyed.

Succeed—Way to.

Men who become successful in the latter years of their life sometimes give out the set of guiding rules to which they attribute their success. The following rules are said to have been formulated by Andrew Carnegie for his own guidance:

Never enter a bar-room, nor let the contents of a bar-room enter you.

Do not use tobacco.

Concentrate. Having entered upon a certain line of work, continue and combine upon that line.

Do not shirk; rather go about your task. Do not let any young man think he has performed his full duty when he has performed the work assigned to him. A man will never rise if he acts thus. Promotion comes from exceptional work. A man must learn where his employer's interests lie and push for these. The young man who does this is the young man whom capital wants for a partner and son-in-law. He is the young man who, by and by, reaches the head of the firm.

Save a little always. Whatever be your wages, lay by something from them.

Never speculate. Never buy stocks or grain on margin.

Never indorse. When you enter on business for yourself never indorse for others. It is dishonest. All your resources and all your credit are the sacred property of the men who have trusted you. If you wish to help another, give him all the cash you can spare.

Another set of rules for young men to follow are those laid down by a man who built up an immense business, the ramifications of which extended all over the United States:

They will bear perusal and are as follows:

Keep good company or none.
Never be idle.

If your hands cannot be usefully employed, attend to the cultivation of your mind.

Always speak the truth. Make few promises.

Live up to your engagements.
Keep your own secrets if you have any.

When you speak to a person look him in the face.

Good company and good conversation are the very sinews of virtue.

Good character is above all things else.

Your character cannot be essentially injured except by your own acts.

If any one speaks evil of you, let your life be such that none will believe him.

Drink no kind of intoxicating liquors.

Ever live (misfortune excepted) within your income.

When you retire to bed think over what you have been doing during the day.

Make no haste to be rich, if you would prosper.

Small and steady gains give competency with tranquillity of mind.

Never play at any game of chance.

Avoid temptation, through fear you may not withstand it.

Earn money before you spend it.

Never run into debt unless you see a way to get out again.

Never borrow if you can possibly avoid it.

Do not marry until you are able to support a wife.

Never speak evil of anyone.

Be just before you are generous.

Keep yourself innocent if you would be happy.

Save when you are young to spend when you are old.

Read over the above maxims at least once a week.

Successful—To Be.

Mr. Schwab, President of the Steel Trust, who has risen in a few years from the ranks to the position of importance he now holds, gives the following rules for success:

"A man should always stand on his own feet, take advantage of opportunities, and be honest and diligent. To succeed you must make yourself indispensable and not set a limit to the time of your working hours, but do your work to the best of your ability, and let pleasure be of secondary importance. The right type of man finds pleasure in his work, and employers are looking for such. Men who compel recognition by their work, cannot be restrained from forging ahead. It is not always the man who is smartest who makes the greatest advancement; it is he of bull-dog tenacity, he who cannot be discouraged, and never gives up."

Sulphur—Flexible.

By adding to pure sulphur a four hundredth part of chlorine or iodine, it becomes very soft, so that it may be spread in thin leaves, as flexible as leaves of wax.

Sulphurous Acid—To Make.

To 12 ounces of sulphuric acid, in a glass retort, add 2 ounces of sulphur, and apply a gentle heat. This is a cheap and easy process.

Sulphureted Hydrogen.

Pour dilute sulphuric acid on sulphuret of iron. This is made by applying a roll of sulphur to a bar of iron heated white hot, or by heating in a crucible a mixture of two parts, by weight, of iron filings, and one of flowers of sulphur.

Sunburn and Tan.

Take two drachms of borax, one drachm of Roman alum, one drachm of camphor, half an ounce of sugar-candy, and a pound of ox-gall. Mix, and stir well for ten minutes or so, and repeat this stirring three or four times a day for a fortnight, till it appears clear and transparent. Strain through blotting paper, and bottle for use.

Another.—Milk of almonds made thus: Take of blanched, bitter almonds, half an ounce; soft water, half a pint; make an emulsion by beating the almonds and water together, strain through a muslin cloth, and it is made.

Another.—A preparation composed of equal parts of olive oil and lime water is also an excellent remedy for sunburn.

Sunflower, The.

The sunflower is very useful. Its leaves soon become large enough to be used as a covering for young cabbage and tomato plants. Its stem affords an excellent hop or bean pole, and when dead in the fall, if cut up and kept dry, it answers very well for kindling-wood. The leaves can be plucked off through the summer without injury to the plant, and then dried for fodder, or fed green to milch cows or horses. Its seeds make a fine oil or chicken feed. It is said to be an absorbent of malaria, and is often cultivated as a preventive of fevers near dwellings that occupy low places. Plant in drills four feet apart, and eighteen inches in the drill, requiring two quarts of seed per acre. Many of the stalks grow sixteen feet high. They want rich land. From eight to ten tons of leaves have been gathered from an acre. The first leaves are generally pulled in July, going up three or four feet high. The next pulling is as high as a man can reach, putting a dozen bundles in a shock, as soon as the seed glazes. In winter the seed is threshed with a flail,

the main heads reserved for seed, and the small ones threshed separately. The main heads gave thirty-one bushels per acre, and the small ones sixteen bushels—forty-seven per acre.

Swimming.

Every person should endeavor to acquire the power of swimming. The fact that the exercise is a healthful accompaniment of bathing, and that lives may be saved by it, even when least expected, is a sufficient argument for the recommendation. The art of swimming is, in reality, very easy. The first consideration is not to attempt to learn to swim too hastily. That is to say, you must not expect to succeed in your efforts to swim, until you have become accustomed to the water, and have overcome your repugnance to the coldness and novelty of bathing. Every attempt will fail until you have acquired a certain confidence in the water, and then the difficulty will soon vanish. It should be kept in mind that the human body weighs very little in the water, and a chair, a small stool, or a box will suffice to keep a man's head out of water.

Those who prefer the aid of preservers or belts, will find it very easy and safe to make belts upon the plan explained in the next two paragraphs; and by gradually reducing the floating power of the belts from day to day, they will gain confidence, and speedily acquire the art of swimming.

Swimming—To Make Life Preservers or Belts.

An excellent and cheap life belt, for persons proceeding to sea, bathing in dangerous places, or learning to swim, may be thus made:—Take a yard and three-quarters of strong duck, double, and divide into nine compartments. Let there be a space of two inches after each third compartment. Fill the compartments with very fine cuttings of cork, which

may be made by cutting up old corks, or (still better) purchased. Work eyelet-holes at the bottom of each compartment, to let the water drain out. Attach a neck-band and waist-strings of strong material, and sew them on strongly.

Another Method.—Cut open an old boa, or victorine, and line it with fine cork-cuttings instead of wool. For ladies going to sea these are excellent, as they may be worn in stormy weather, without giving appearance of alarm in danger. They may be fastened to the body by tapes, of the color of the fur. Gentlemen's waistcoats may be lined the same way.

Dr. Franklin's Advice to Swimmers.—"The only obstacle to improvement in this necessary and life-preserving art is fear: and it is only by overcoming this timidity that you can expect to become a master of the following acquirements. It is very common for novices in the art of swimming to make use of cork or bladders to assist in keeping the body above water; some have utterly condemned the use of them; however, they may be of service for supporting the body while one is learning what is called the stroke, or that manner of drawing in and striking out the hands and feet that is necessary to produce progressive motion.

Confidence in Water.—"But you will be no swimmer till you can place confidence in the power of the water to support you; I would, therefore, advise the acquiring that confidence in the first place; especially as I have known several who, by a little practice, necessary for that purpose, have insensibly acquired the stroke, taught, as it were, by nature. The practice I mean is this: choosing a place where the water deepens gradually, walk coolly into it till it is up to your

breast; then turn round your face to the shore, and throw an egg into the water between you and the shore; it will sink to the bottom and be easily seen there if the water be clear. It must lie in the water so deep that you cannot reach to take it up but by diving for it.

To encourage yourself in order to do this, reflect that your progress will be from deep to shallow water, that at any time you may, by bringing your legs under you, and standing on the bottom, raise your head far above the water; then plunge under it with your eyes open, which must be kept open on going under, as you cannot open the eyelids for the weight of water above you; throwing yourself toward the egg, and endeavoring by the action of your hand and feet against the water to get forward, till within reach of it. In this attempt you will find that the water buoys you up against your inclination; that it is not so easy to sink as you imagine, and that you cannot, but by active force, get down to the egg. Thus you feel the power of water to support you, and learn to confide in that power, while your endeavors to overcome it, and reach the egg, teach you the manner of acting on the water with your feet and hands, which action is afterwards used in swimming to support your head higher above the water, or to go forward through it.

Trial of this Method.—"I would the more earnestly press you to the trial of this method, because I think I shall satisfy you that your body is lighter than water, and that you might float in it a long time with your mouth free for breathing, if you would put yourself into a proper posture, and would be still, and forbear struggling; yet, till you have ob-

tained this experimental confidence in the water, I cannot depend upon your having the necessary presence of mind to recollect the posture, and the directions I give you relating to it. The surprise may put all out of your mind.

Legs, Arms, and Head.—"Though the legs, arms, and head of a human body, being solid parts, are specifically somewhat heavier than fresh water, as the trunk, particularly the upper part, from its hollowness, is so much lighter than water, so the whole of the body, taken altogether, is too light to sink wholly under water, but some parts will remain above until the lungs become filled with water, which happens when a person, in the fright, attempts breathing while the mouth and nostrils are under water.

Legs and Arms Lighter than Salt Water.—"The legs and arms are specifically lighter than salt water, and will be supported by it, so that a human body cannot sink in salt water, though the lungs were filled as above, but from the greater specific gravity of the head. Therefore a person throwing himself on his back in salt water, and extending his arms, may easily lie so as to keep his mouth and nostrils free for breathing; and, by a slight motion of his hand, may prevent turning if he should perceive any tendency to it.

In Fresh Water.—"In fresh water if a man throw himself on his back near the surface, he cannot long continue in that situation, but by proper action of his hands on the water; if he use no such action, the legs and lower part of the body will gradually sink till he come into an upright position, in which he will continue suspended, the hollow of his breast keeping the head uppermost.

Erect Position.—"But if in this erect position the head be kept upright above the shoulders, as when we stand on the ground, the immersion will, by the weight of that part of the head that is out of the water, reach above the mouth and nostrils, perhaps a little above the eyes, so that a man cannot long remain suspended in water with his head in that position.

The Body Continuing Suspended.—"The body continuing suspended as before, and upright, if the head be leaned quite back, so that the face look upward, all the back part of the head being under water, and its weight consequently in a great measure supported by it, the face will remain above water quite free for breathing, will rise an inch higher every inspiration, and sink as much every expiration, but never so low as that the water may come over the mouth.

Person Unacquainted with Swimming.—"If therefore a person unacquainted with swimming and falling accidentally into the water, could have presence of mind sufficient to avoid struggling and plunging, and to let the body take this natural position, he might continue long safe from drowning: till, perhaps, help should come; for, as to the clothes, their additional weight when immersed is very inconsiderable, the water supporting it; though when he comes out of the water, he will find them very heavy indeed.

Presence of Mind.—"But I would not advise any one to depend on having this presence of mind on such an occasion, but learn fairly to swim, as I wish all men were taught to do in their youth; they would on many occasions be the safer for having that skill; and on many more, the happier, as free from painful ap-

prehensions of danger, to say nothing of the enjoyment in so delightful and wholesome an exercise. Soldiers particularly should, methinks, all be taught to swim; it might be of frequent use, either in surprising an enemy or saving themselves; and if I had now boys to educate, I should prefer those schools (other things being equal) where an opportunity was afforded for acquiring so advantageous an art, which, once learned, is never forgotten.

Swimming on the Back.—"I know by experience that it is a great comfort to a swimmer, who has a considerable distance to go, to turn himself sometimes on his back, and to vary, in other respects, the means of procuring a progressive motion.

The Cramp.—"When he is seized with the cramp in the leg, the method of driving it away is to give the parts affected a sudden, vigorous, and violent shock; which he may do in the air as he swims on his back.

"During the Great Heats in Summer there is no danger in bathing, however warm we may be, in rivers which have been thoroughly warmed by the sun. But to throw one's self into cold spring water, when the body has been heated by exercise in the sun, is an imprudence which may prove fatal. I once knew an instance of four young men, who, having worked at harvest in the heat of the day, with a view of refreshing themselves, plunged into a spring of cold water; two died upon the spot, a third next morning, and the fourth recovered with great difficulty."

The Exercise of Swimming Healthy and Agreeable.—"The exercise of swimming is one of the most healthy and agreeable in the world. After having swum for an hour or two

in the evening one sleeps coolly the whole night, even during the most ardent heat of summer. Perhaps the pores being cleansed, the insensible perspiration increases, and occasions this coolness. It is certain that much swimming is the means of stopping diarrhœa and even of producing a constipation. With respect to those who do not know how to swim, or who are affected with diarrhœa at a season which does not permit them to use that exercise, a warm bath, by cleansing and purifying the skin, is found very salutary, and often effects a radical cure. I speak from my own experience, frequently repeated, and that of others, to whom I have recommended this."

Swimming on Dry Land.—The Life Saving Society, under the direction of Mr. William Henry, the amateur champion swimmer of England, is giving great attention to this subject, and has published full information for the guidance of parents and teachers. It is perfectly easy to teach children to swim without ever being in the water at all, and of course it is enormously important.

First the children are drawn up in ranks as in ordinary drill, and when the command 'Position' is given, they place their hands on their hips. The first movement in this swimming drill is the leg movement. When 'One' is called, the children raise the left knee (directing it sideways), the heel of the left foot touching the inside of the right knee, with the toes pointing downwards. When 'Two' is called, the left leg is straightened and lowered by a backward and rounded movement until the point of the big toe touches the ground one pace to the left. Then, when 'Three' is called, the left foot is drawn along the ground

and the leg is closed smartly. The right leg is put through similar movements.

Next comes the arm movement. When the command 'Position' is given the children raise their arms by bending them upwards from the elbows, and shoot the hands forward, with arms extended and directed slightly upwards, thumbs touching, with the palms turned downward, and the head inclined slightly backward.

Then they sweep the arms round in a quarter curve right and left, until they are in line with each other, with the backs of the hands turned slightly towards the front.

Then the elbows are closed to the sides of the body, and the hands are brought to the sides of the chest slightly to the front; the fingers are closed, pointing to the front with palms downward, the thumbs about six inches apart.

Then the hands are shot forward to the full extent of the arms and slightly upward, thumbs touching, the palms turned down, and the head inclined backward. The third movement in this drill is a combined arm and leg movement, when the two movements just described are combined.

These movements, if gone through continually, become automatic, and when the children are taken to the water little explanation is required as to what they have to do. They are taught to trust themselves to the water, and to put into action the movements they have practiced on land.

Instruction is also given on the management of the breath, which is, of course, of the greatest importance, for when the lungs are properly filled the body is much more buoyant when in the water.

Syrups for Mineral Waters.

Simple.—White sugar 10 lbs., water 1 gallon, best isinglass $\frac{1}{4}$ of an ounce. Dissolve the isinglass in hot water, and add it to the hot syrup. The syrup is to be made with gentle heat, and then strained.

Lemon.—a. Grate off the yellow rind of lemons, and beat it up with a sufficient quantity of granulated sugar. Express the lemon-juice, add to each pint of juice 1 pint of water, and 3 lbs. of granulated sugar, including that rubbed up with the rind; warm until the sugar is dissolved, and strain.

Lemon.—b. Simple syrup 1 gallon, oil of lemon, 25 drops, citric acid 10 drachms. Rub the oil of lemon with the acid, add a small portion of syrup, and mix.

Strawberry.—a. Strawberry juice 1 pint, simple syrup 3 pints, solution of citric acid 2 drachms.

Strawberry.—b. Fresh strawberries 5 quarts, white sugar 12 lbs., water 1 pint. Sprinkle some of the sugar over the fruit in layers, and allow the whole to stand for several hours; express the juice and strain, washing out the pulp with water; add the remainder of the sugar and water, bring the fluid to the point of boiling, and then strain. This will keep for a long time.

Raspberry.—Raspberry juice 1 pint, simple syrup 3 pints, solution of citric acid 2 drachms. Raspberry syrup may also be made in a way similar to Strawberry — b.

Vanilla.—Fluid extract of vanilla 1 ounce, citric acid $\frac{3}{4}$ of an ounce, simple syrup, 1 gallon. Rub up the acid with some of the syrup, add the extract of vanilla, and mix.

Vanilla Cream.—Fluid extract of vanilla 1 ounce, simple syrup 3 pints, cream or condensed milk 1 pint; may be colored with carmine.

Cream.—Fresh cream 1 pint, fresh milk 1 pint, powdered sugar 1 lb. Mix by shaking and keep in a cool place. The addition of a few grains of bicarbonate of soda will for some time retard souring.

Ginger.—Tincture of ginger 2 fluid ounces, simple syrup 4 pints.

Orange.—Oil of orange 30 drops, tartaric acid 4 drachms, simple syrup 1 gallon. Rub the oil with the acid, and mix.

Pineapple.—Oil of pineapple 1 drachm, Tartaric acid 1 drachm, simple syrup 6 pints.

Orgeat.—Cream syrup one pint, Vanilla syrup 1 pint, oil of bitter almonds 4 drops.

Nectar.—Vanilla syrup 5 pints, pineapple syrup 1 pint, strawberry, raspberry or lemon 2 pints.

Sherbet.—Vanilla syrup 3 pints, pineapple syrup 1 pint, lemon syrup 1 pint.

Grape.—Brandy $\frac{3}{4}$ of a pint, spirits of lemon $\frac{3}{4}$ of an ounce, tincture of red sanders 2 ounces, simple syrup 1 gallon.

Banana.—Oil of banana 2 drachms, tartaric acid 1 drachm, simple syrup 6 pints.

Coffee.—Coffee roasted $\frac{1}{3}$ of a lb., boiling water 1 gallon. Enough is filtered to make about one-half gallon of the infusion, to which add granulated sugar 7 lbs.

Wild Cherry.—Wild cherry bark in coarse powder 5 ounces. Moisten the bark with water, and let it stand for 24 hours in a closed vessel. Then pack it firmly in a percolator, and

pour water upon it until 1 pint of fluid is obtained. To this add 28 ounces of sugar.

Wintergreen.—Oil of winter-green 25 drops, simple syrup 5 pints, and a sufficient quantity of burnt sugar to color.

Sarsaparilla—a. Oil of wintergreen 10 drops, oil of anise 10 drops, oil of sassafras 10 drops, fluid extract of sarsaparilla 2 ounces, simple syrup 5 pints, powdered extract of licorice 1 ounce.

Sarsaparilla—b. Simple syrup 4 pints, compound syrup of sarsaparilla 4 fluid ounces, caramel $1\frac{1}{2}$ ounces, oil of wintergreen 6 drops, oil of sassafras 6 drops.

Maple.—Maple sugar 4 lbs., water 2 pints.

Chocolate.—Best chocolate 8 ounces, water 2 pints, white sugar 4 pounds. Mix the chocolate in water, and stir thoroughly over a slow fire. Strain and add sugar.

Coffee Cream.—Coffee syrup 2 pints, cream 1 pint.

Ambrosia.—Raspberry syrup 2 pints, vanilla syrup 2 pints, hock wine 4 ounces.

Hock and Claret.—Hock or claret wine 1 pint, simple syrup 2 pints.

Solferino.—Brandy 1 pint, simple syrup 2 pints.

Fruit Acid (Used in some of the syrups).—Citric acid 4 ounces, water 8 ounces. Most of the syrups not made from fruits, may have a little gum Arabic added in order to produce a rich froth.

T

Tables—To Remove Heat Marks from.

If a whitish mark is left on a table, by carelessly setting on a pitcher of boiling water, or a hot dish, pour some lamp oil on the spot, and rub it hard with a soft cloth. Then pour on a little spirits of wine or cologne water, and rub it dry with another cloth. The white mark will thus disappear, and the table look as well as ever.

Tables, Dining.

Dining tables may be polished by rubbing them for some time with a soft cloth and a little linseed oil.

Tables—To Preserve the Polish of.

A piece of oil-cloth (about twenty inches long) is useful in a sitting-room. Kept in the closet, it can be available at any time, in order to place upon it jars, lamps, etc., whose contents are likely to soil your table during the process of emptying or filling them.

Tanning—Chemistry of.

The skins of animals are constituted mainly of glue or gluten. This is soluble, and the principle derived from the bark, tannin, or tannic acid, is also to a considerable extent soluble. When the latter is allowed to act upon the former, chemical combination takes place, and leather is produced which is wholly insoluble.

Tan Bark.

The tanning properties of bark mainly consist of the inner lining of the same; a great saving in transportation would be made by separating the inner from the outer coating before sending to market. It is also recommended that this fiber be ground to a very fine powder, in order that its virtues may be the better extracted, and that it be transported in barrels, to pro-

tect it from moisture, and the better to prevent the oxygen of the air from acting on the tannin, and thus converting it into gallic acid.

Tanning—Old-Fashioned Way.

The first operation is to soak the hide, as no hide can be properly tanned unless it has been soaked and broken on a fleshing beam. If the hide has not been salted add a little salt and soak it in soft water. In order to be thoroughly soaked green hides should remain in this liquor from 9 to 12 days; of course the time varies with the thickness of the hide. The following liquor is used to remove hair or wool, viz.: 10 gallons cold water (soft), 8 quarts slaked lime, and same quantity of wood ashes. Soak until the hair or wool will pull off easily.

As it frequently happens it is desirable to cure the hide and keep the hair clean, the following paste should be made, viz.: Equal parts of lime and hard wood ashes (lime should be slaked), made into a paste with soft water. This should be spread on the flesh side of the hide and the skin rolled up flesh side in and placed in a tub just covering it with water. It should remain ten days or until the hairs pull out easily, then scrape off with a knife.

Tanning, Without the Wool or Hair.

The skins are first soaked in warm water, scraped on the flesh side to get off fat, and hung in a warm room until they begin to give a slight smell of hartshorn. The wool or fur then comes off readily. The hair side should now be thoroughly scraped against the hair. The skin is next soaked two or three weeks in weak lime water, changing the water two or three times. Then they are brought out again, scraped smooth and trimmed. Then rinsed in clean water, then soaked in wheat bran and water for two or three weeks.

After this they are well stirred around in a pickle of alum, salt and water. Then they are thrown again into the bran and water for two or three days. Then stretched and dried somewhat in a warm room. After this they are soaked in warm water and then worked or trodden on in a trough or pail filled with yelk of eggs, salt, alum, flour and water, beaten to a froth. They are finally stretched and dried in an airy room, and last of all smoothed with a warm smoothing iron. This makes the beautiful leather we see in gloves, military trimmings, etc. The proportions for the egg paste are as follows: $3\frac{1}{2}$ pounds salt, 8 pounds alum, 21 pounds wheat flour and yolks of nine dozen eggs. Make a paste with water, dissolving first the alum and salt. A little of this paste is used as wanted with a great deal of water.

Chamois Skins and deer skins not wanted for gloves, are similarly treated up to the point of treating with egg paste. Instead of using this process they are oiled on the hair side with very clean animal oil, rolled into balls and thrown into the trough of a fulling mill, well beaten two or three hours, aired, re-oiled, beaten again and the process repeated a third time. They are then put into a warm room until they begin to give out a decided smell, then scoured in weak lye to take out superfluous grease. Here the intention is merely to get a thick felt-like skin of good color,—a nicely grained surface is not required as in gloves. The skins are finally rinsed, wrung out, stretched and dried, and when nearly dry slightly rubbed with a smooth, hard round stick.

These are the fine processes. A dried skin oiled so as to become smooth and pliable will retain the hair or wool a considerable time. Or it may be made more durable where the color of the flesh side is no object

by scraping, washing in soap suds and then putting directly into the tan pit. For ordinary purposes rabbit, squirrel and other small skins can be efficiently preserved with the hair by the application of powdered alum and fine salt — put on them when fresh, or if not fresh by dampening them first. Squirrel skins when wanted without the hair will tan very well in wheat bran tea, the fat and hair having been previously removed by soaking in lime water and scraping. Old tea leaves afford tannin enough for small skins but they give a color not nearly so pleasant as bran. Almost any of the barks afford tannin enough for small skins, willow, pine, poplar, hemlock of course, sumach, etc.

Tanning—Without Bark or Mineral Astringents.

The astringent liquor is composed of water, 17 gallons; Aleppo galls $\frac{1}{2}$ lb.; Bengal catechu, $1\frac{1}{2}$ oz., and 5 lbs. of tormentil, or septfoil root. Powder the ingredients, and boil in the water 1 hour; when cool, put in the skins (which must be prepared by being plunged into a preparation of bran and water for 2 days previously); handle them frequently during the first 3 days, let them alone the next 3 days, then handle three or four times in one day; let them lie undisturbed for 25 days more, when the process will be complete.

Canadian Process.—The Canadians make four liquors in using the japonica. The first liquor is made by dissolving, for 20 sides of upper, 15 lbs. of terra japonica in sufficient water to cover the uppers being tanned. The second liquor contains the same amount of japonica, and 8 lbs. of saltpetre also. The third contains 20 lbs. of japonica, and $4\frac{1}{2}$ lbs. of alum. The fourth liquor contains only 15 lbs. of japonica, and $1\frac{1}{2}$ lbs. of sulphuric acid;

and the leather remains 4 days in each liquor for upper; and for sole the quantities and time are both doubled. They count 50 calf skins in place of 20 sides of upper, but let them lie in each liquor only 3 days.

Tanning—Currier's Size for.

Take of sizing, 1 quart; soft-soap, 1 gill; stuffing, 1 gill; sweet milk, $\frac{1}{2}$ pt.: boil the sizing in water to a proper consistence, strain, and add the other ingredients; and, when thoroughly mixed, it is ready for use.

Tanning—Currier's Paste for.

First coat. Take of water, 2 quarts; flour, $\frac{1}{2}$ pint; Castile soap, 1 oz.; make into paste. Second Coat. Take of first paste, $\frac{1}{2}$ pt.; gum-tragacanth, 1 gill; water, 1 pt.: mix all together. This will finish eighteen sides of upper.

Tanning—Currier's Skirting for.

This is for finishing skirting and the flesh of harness leather, in imitation of oak-tanning. Take of chrome yellow, $\frac{1}{2}$ lb.; yellow ochre, 1 lb.; cream of tartar, 1 oz.; soda $\frac{1}{2}$ oz.; paste, 5 qts.: mix well. This will finish twelve sides.

For the Grain—To Imitate Oak Tan.

Take of chrome yellow, $\frac{1}{2}$ lb.; yellow ochre, $\frac{1}{2}$ lb.; cream of tartar, 1 oz.; soda, 1 oz.; paste, 2 qts.; spirits of turpentine, 1 pt.; mix well. This will finish twelve sides.

Tar, Pitch or Turpentine—To Remove.

Scrape off as much as you can; then wet the place thoroughly with good salad oil, and let it remain for twenty-four hours. If linen or cotton, wash it out in strong warm soap-suds; if woolen or silk, take out the oil with ether or spirits of wine.

If the stain is of tar, you may remove it (after scraping and wiping), by using cold tallow instead of sweet oil.

Rub and press well on the spot a small lump of good tallow, and leave it sticking there till next day. Then proceed as above.

Tea-Kettle—To Clean.

Put into the tea-kettle a flat oyster-shell, and keep it constantly there. It will attract the stony particles that are in the water to itself, and prevent their forming upon the tea-kettle.

Tea-Pots—China,

Are the safest, and, in many respects, the most pleasant. Wedgwood ware is very apt, after a time, to acquire a disagreeable taste.

Teeth—When to Clean.

If the teeth are to get but one thorough cleansing during the day, just before retiring is the best time to give it to them, as there are six or eight hours during sleep that the salivary glands are inactive, and fatty and starchy foods that may be lodged between and around the teeth are bathed in saliva, a partial digestive fluid, undergo decomposition, forming acids, which act more or less readily on the tooth structure at the time of formation; the salivary glands, not being active during sleep, acids are not diluted, as during day. A free flow of saliva prevents, to a great degree, the deleterious effects of acids thus formed.

The teeth and gums should be carefully brushed after each meal with a medium soft brush, using as a wash, on damp brush, alcohol, rosewater and listerine, equal parts.

Temperature and Color.

A faint red is probably about 950 degrees Fahrenheit, a dull red 1300 degrees Fahrenheit, bright cherry red about 1800 degrees Fahrenheit, orange 2000 degrees Fahrenheit, bright white heat 2550 degrees Fahrenheit, and the greatest heat of an iron-blast furnace 33,000 degrees Fahrenheit. Compared with these heats

ether boils at 104 degrees, alcohol at 173 degrees, nitric acid at 210 degrees, oil of turpentine at 304 degrees, sulphur at 570 degrees, and mercury at 656 degrees. The usual temperature of tea or coffee "at table" is about 110 degrees, and a bath scalds at 150 degrees. Metals taken from a bath at 150 degrees feel much hotter than wood taken from it; and metals from boiling water cannot be handled though wood can. The heat-conducting power of metals varies very much, gold coming first (1000 degrees) and platinum second (981 degrees); iron is about 374 degrees and lead 180°.

Temperature to Freeze and Boil.

Degrees of cold above zero at which the following substances freeze:

Milk.....	30
Water.....	32
Olive Oil.....	36
Spirits of Turpentine.....	14
Wines.....	20
Vinegar.....	28

Degrees below zero at which the following freeze:

Brandy.....	7
Proof Spirit.....	7
Mercury.....	40
Greatest artificial cold.....	200
Cold experienced by Arctic navigators.....	70

Degrees of heat above zero at which the following substances boil:

Alcohol.....	173
Water.....	212
Petroleum.....	306
Linseed Oil.....	640
Blood Heat.....	98
Eggs Hatch.....	104

Tennis, Lawn.

This fashionable and delightful game, suitable for both ladies and gentlemen, is generally played on a lawn or grass plot by two, three, or four players, with balls and racquets. The object of the game is to strike the ball into a part of the opponent's court in such a way

that he cannot return it direct or on its first bound. The court or ground may be of any size consistent with the lawn, the base lines being marked out by chalk, or tapes slightly pinned to the turf, which should be frequently mown and rolled. The mode of play may be seen from the following leading rules which are now generally accepted by all players.

Rules of Lawn Tennis.—The court, for a single-handed game, should be 78 feet long and 27 feet wide, and for a double-handed game the same length, but 36 feet wide, divided across the centre by a net attached to two upright posts. The net should be 3 feet 6 inches high at the posts, and 3 feet at the centre. At each end of the court, parallel with the net, are the base lines, whose extremities are connected by the side lines. The half-court line is half-way between the side lines and parallel with them. The service lines are 21 feet from the net and parallel with it.

The balls should be 2½ inches in diameter, and two ounces in weight.

The choice of sides and the right of serving during the first games are decided by toss.

The players stand on opposite sides of the net. The player who first delivers the ball is called the 'server,' the other the 'striker-out.'

At the end of the first game the 'striker-out' becomes 'server,' and the 'server,' 'striker-out,' and so on alternately in subsequent games of the set.

The 'server' stands with one foot beyond the base line, and delivers the service from the right and left courts alternately, beginning from right.

The balls served must, without touching the net, drop within the service line, half-court line, and side line diagonally opposite to that from which the striker serves it.

If the service be delivered from the wrong court it is a fault. It

is also a fault if the 'server' does not stand in the manner as stated above, or if the ball served drop in the net or beyond the service line, or if it drop out of court, or go in the wrong court.

A fault may not be taken, that is, played back to the 'server.'

After a fault, the 'server' shall serve again from the same court, unless it was a fault because served from the wrong court. A fault may not be claimed after the next service has been delivered. The 'striker-out' may not volley the service. 'Volleying' is striking the ball back before it has touched the ground.

The ball, having been returned, must be kept in play either by volleying it, or striking it back after the first bounce. A ball bouncing twice is out of play.

If, in serving, the ball touch the net and go over into the proper court, it is called a 'let' and counts to neither 'server' nor 'striker-out.'

The 'server' scores if the 'striker-out' volley the service, or fail to return the service in such a way that the ball would fall within the opponents' court.

Two consecutive faults count a stroke against the 'server.'

If the ball when in play touch either player it scores a stroke for his opponent.

The first stroke won by either player scores 15 to that player; the second, won by the same player, raises his score to 30; his third stroke to 40, and his fourth counts 'game.' If however, the players have both scored 40, it is called 'deuce,' and the next stroke won by either is called 'advantage' to the winner of it, and if he also win the following stroke he scores game. Should he lose it the score returns to 'deuce.' The player winning two consecutive strokes directly following a 'deuce' scores 'game.'

Whichever player first scores six

games is considered to win the 'set,' except as follows:

If both players win five games, the score is 'games all,' and the next game won by either player is 'advantage game' for that player. If the same player win the next game, he wins the 'set'; if he lose the next game the score is again 'games all,' and so on until one wins the two games following 'games all,' when he wins the 'set.'

Tennis, Lawn—Three-Handed and Four-Handed.

The laws as given above apply equally to these games. The difference in the width of the court has been stated.

In Four-handed Tennis the players deliver the service in turns: thus supposing A and B are partners opposed to C and D; A serves in the first game, C in the second, B serves in the third, and D in the fourth, and so on.

In three-handed Tennis the single player serves in each alternate game.

No player may return a service that has been delivered to his partner.

Terra Cotta

Means baked earth. It is usually made of potters' clay and fine powdered silica.

Thistles, Canada.

The best method is, after the land is well saturated with moisture, to draw them by hand with stout gloves, with a piece of old sacking sewed over the palm, to prevent the plant from slipping when the gloves become wet. With a very little care, the thistle may be drawn with 6 or 8 inches of the root; and you will be rid of the nuisance in two seasons.

Thrushes.

A cock may be distinguished from a hen by a darker back and the more glossy appearance of the feathers. The belly also is white. Their natu-

ral food is insects, worms, and snails. In a domesticated state they will eat raw meat, but snails and worms should be procured for them. Young birds are hatched about the middle of April, and should be kept very warm. They should be fed with raw meat, cut small, or bread mixed in milk with hemp-seed well bruised; when they can feed themselves give them lean meat cut small, and mixed with bread or German paste, plenty of clean water, and keep them in a warm, dry, and sunny situation.

Tides.

The surface of the ocean rises and falls twice in every 'lunar' day, i. e. about 25 hours, and this rise and fall appears along a coast to be a 'horizontal' motion—ebbing and flowing. The movement of a tide-wave is quite different from that of a wind-wave, for it affects the whole depth of the ocean equally, while even the most violent wind-waves do not trouble the water at all at a depth of 50 feet. Every fortnight, i. e., after a new or a full moon, the tides rise much higher than in the alternate weeks after the first and last quarters of the moon; and these high tides are called Spring tides, the low ones being called Neap. This shows that the moon's influence is much greater than the sun's. Of course, the whole attraction of the sun on the earth is enormously greater than that of the moon; but the moon is so much nearer to the earth that the difference between her attraction at its centre and on its surface is nearly three times as great as the difference of the sun's. And it is this difference that causes the tides. Spring tides are the result of both sun and moon pulling in the same direction, and Neap tides are the result of their attractive forces exerted and pulling at right angles to each other.

Timber—Why it Should Be Painted.

When water is applied to the smooth surface of timber, a thin layer of the wood will be raised above its natural position by the expansion or swelling of the particles near the surface. In colloquial phrase, workmen say that when water is applied to a smooth board, the grain of the timber will be raised. Every successive wetting will raise the grain more and more; and the water will dissolve and wash away the soluble portions with which it comes in contact. As the surface dries, the grain of the timber on the surface, having been reduced in bulk, must necessarily shrink to such an extent as to produce cracks. Now if a piece of oil-cloth be pasted over the surface, the timber will be kept quite dry. Consequently the grain of the wood will not be subjected to the alternate influences of wet and heat. As it is not practicable to apply oil-cloth ready made, a liquid or semi-liquid material is employed for covering the surface, which will adhere firmly, and serve the purpose of oil-cloth in excluding water that would otherwise enter, to the injury of the work. Metallic substances are painted to prevent oxidation or rusting of the surfaces which may be exposed to moisture.

It is of primary importance to make use of such materials as will form over the surface a smooth and tenacious coating, impervious to water. Any material that will not exclude water sufficiently to prevent the expansion of the grain of the timber, or the oxidation of metallic substances, must be comparatively worthless for paint. Linseed oil possesses the property of drying when spread on a surface, and forming a tenacious covering, impervious to water. Spirits of turpentine, benzene, benzole and certain kinds of lubricating oils, all of which are frequently used

in preparing paint, will not form a covering sufficiently tough and hard to resist the action of water; for which reason, the paint that is made by employing these volatile materials will be found comparatively worthless for outside work. A pigment is mingled with the oil to prevent the timber to which the paint is applied from absorbing the oil. The design is not to saturate the wood with oil, but simply to cover the surface with a coating resembling a thin oil-cloth.

Timber—To Test the Soundness of.

Large trees of valuable timber are frequently unsound—either hollow, “dozy,” or full of cracks at the butt-end, even when the external appearance indicates a good condition of the interior or heart. This is particularly the case with white-oak timber. Large and valuable trees have frequently been purchased at an exorbitant price for some special purpose. But when the woodman’s axe had made a kerf half-way to the middle of the butt, the interior was found to be dozy or hollow, rendering the timber wholly worthless for the purposes intended.

In order to determine whether the heart of a tree is defective, without cutting into it with an ax, the most expeditious way is to bore into the butt, say one foot from the surface of the ground, with a two-inch auger, drawing out the chips frequently for examination. In case the tree is of so large dimensions that the heart cannot be reached with an auger of ordinary length, an iron rod one or more feet long may be attached, either by welding, or by means of a socket made in the rod to fit the shank of the auger. An auger-hole near the ground will not injure a tree for timber, except in case it is to be employed for sleigh-runners or for ship-building.

Time.

60 seconds	1 minute.
60 minutes	1 hour.
24 hours	1 day.
7 days	1 week.
52 weeks and 1 day, or 365 days.....	1 ordinary year.
365 days, 5 hours, 48 min., 48 sec.....	1 solar year.
365 days, 6 hours.....	1 Julian year.
366 days.....	1 leap year.

The year is also divided into 12 calendar months, viz.:

January	31 days.
February (29, or).....	28 “
March.....	31 “
April.....	30 “
May.....	31 “
June.....	30 “
July.....	31 “
August.....	31 “
September.....	30 “
October.....	31 “
November.....	30 “
December.....	31 “

A lunar month has 28 days.

Time—Standard.

Eastern Time.—Includes all territory between the Atlantic Ocean and an irregular line drawn from Detroit, Mich., to Charleston, S. C.

Central Time.—All the territory between the last named line and an irregular line drawn from Bismarck, N. Dak., to the mouth of the Rio Grande.

Mountain Time.—All territory between the last named line and nearly the west borders of Idaho, Utah and Arizona.

Pacific Time.—All territory between the last named line and the Pacific Ocean.

The time of each section differs from that next to it by exactly one hour, thus at 12 o’clock noon, New York (Eastern Time), it is 11 A. M. at Chicago (Central Time), 10 A. M. at Denver (Mountain time), and 9 A. M. at San Francisco (Pacific Time). Standard

time is 16 minutes slower at Boston than true local time, 4 minutes slower at New York, 8 minutes faster at Washington, 19 minutes faster at Charleston, 28 minutes slower at De-

troit, 8 minutes faster at Kansas City, 10 minutes slower at Chicago, 1 minute faster at St. Louis, 28 minutes faster at Salt Lake City, and 10 minutes faster at San Francisco.

Time—Mean and Standard.

To change from mean time to standard time add or subtract the minutes as given below, according as they are marked plus or minus.

Eastern Standard.—75 degrees Longitude.

	Minutes.
Bangor, Me.	— 25
Augusta, Me.	— 21
Portland, Me.	— 19
Boston, Mass.	— 16
Newport, R. I.	— 15
Providence, R. I.	— 14
Concord, N. H.	— 14
New London, Conn.	— 11
Springfield, Mass.	— 10
Montpelier, Vt.	— 10
Hartford, Conn.	— 9
Montreal, P. Q.	— 6
Albany, N. Y.	— 5
New York, N. Y.	— 4
Utica, N. Y.	+ 1
Philadelphia, Pa.	+ 1
Syracuse, N. Y.	+ 5
Baltimore, Md.	+ 6
Washington, D. C.	+ 8
Rochester, N. Y.	+ 11
Buffalo, N. Y.	+ 16
Pittsburgh, Pa.	+ 20
Mountain Standard. — 105 degrees Longitude.	
	Minutes.
Denver, Col.	0
Salt Lake City, Utah.	+ 28

Central Standard.—90 degrees Longitude.

	Minutes.
Cleveland, Ohio.	— 33
Columbus, Ohio.	— 28
Detroit, Mich.	— 28
Toledo, Ohio.	— 26
Dayton, Ohio.	— 23
Cincinnati, Ohio.	— 22
Louisville, Ky.	— 18
Indianapolis, Ind.	— 16
Chicago, Ill.	— 10
Milwaukee, Wis.	— 8
Springfield, Ill.	— 2
Memphis, Tenn.	0
New Orleans, La.	0
St. Louis, Mo.	+ 1
Rock Island, Ill.	+ 3
Dubuque, Iowa.	+ 3
Burlington, Iowa.	+ 5
St. Paul, Minn.	+ 12
Des Moines, Iowa.	+ 14
Kansas City, Mo.	+ 18
Galveston, Texas.	+ 19
Omaha, Neb.	+ 24
Pacific Standard.—120 degrees Longitude.	
	Minutes.
Sacramento, Cal.	+ 6
San Francisco, Cal.	+ 10

Time—Foreign Cities Later than New York.

Antwerp.	5 Hours, 13 Minutes.	Liverpool.	4 Hours, 43 Minutes.
Berlin.	5 " 49 "	London.	4 " 35 "
Bremen.	5 " 31 "	Madrid.	4 " 41 "
Brussels.	5 " 13 "	Paris.	5 " 5 "
Buenos Ayres.	1 " 2 "	Rio de Janeiro.	2 " 3 "
Calcutta.	10 " 49 "	Rome.	5 " 45 "
Constantinople.	6 " 51 "	St. Petersburg.	6 " 57 "
Dublin.	4 " 30 "	Valparaiso.	— " 9 "
Edinburgh.	4 " 43 "	Vienna.	6 " 1 "
Geneva.	5 " 20 "	Halifax.	— " 41 "
Hamburg.	5 " 55 "		

Time—Foreign Cities Earlier than New York.

Havana.	—hours, 33 minutes.	City of Mexico.	1 hour, 40 minutes.
Hong Kong.	11 " 27 "	Yokohama.	9 " 45 "
Melbourne.	9 " 24 "		

Time in Different Parts of the World.

When it is noon at Greenwich, the time is as follows at the chief cities on the globe:

	A.M.		P.M.
Boston.....	7.18	Calcutta.....	5.54
Chicago.....	6.08	Cape Town.....	1.14
Dublin.....	11.35	Constantinople.....	1.56
Edinburgh.....	11.47	Copenhagen.....	0.50
Lisbon.....	11.43	Madras.....	5.21
Madrid.....	11.45	Malta.....	0.58
Monte Video.....	8.17	Melbourne.....	9.40
New York.....	7.04	Moscow.....	2.30
Philadelphia.....	6.59	Munich.....	0.46
Quebec.....	7.15	Paris.....	0.09
Rio de Janeiro.....	9.08	Pekin.....	7.46
San Francisco.....	3.49	Rangoon.....	6.24
	P.M.	Rome.....	0.50
Adelaide.....	9.14	Rotterdam.....	0.18
Aden.....	3.00	St. Petersburg.....	2.01
Amsterdam.....	0.20	Suez.....	2.10
Berlin.....	0.54	Sydney.....	10.05
Berne.....	0.30	Stockholm.....	1.12
Bombay.....	4.52	Stuttgart.....	0.37
Brisbane.....	10.12	Vienna.....	1.06
Brussels.....	0.17	Wellington.....	11.40

The earth revolves at the rate of one degree in every four minutes, or fifteen degrees per hour.

Tin—How to Clean.

Never use lye to clean tin, it will soon spoil it. Make it clean with suds, and rub it with whiting, and it will look well, and last much longer.

Tin Pans — How to Mend Cheaply.

This can be done quickly and easily by the use of putty, and is much better than to throw them away. Put it on the outside; let it dry thoroughly, and they will not need mending in the same place again.

Tints—Mixing for Paints.

The first principle in mixing tints is to take the body color, or that ingredient which predominates, and add to it, gradually, the other colors. The principal ingredient may be thick, but the

others must invariably be thin, or the lumps will spread out under the brush leaving a streak of corresponding color.

In describing the manner of mixing tints, the predominant color will be mentioned first, the second next, and so on, as it would be impossible to give the exact proportion of each color used in any given tint. Thus, for instance, violet is mostly red, the next in quantity blue, and the least white, and so on. In this manner the following table exhibits almost every tint which the painter will be likely to require, leaving to his taste the peculiar tone:

Gray,	White Lead and Lamp-black.
Buff,	White and Yellow Ochre, Red.
Pearl,	White, Black, Blue.

Orange,	Yellow, Red.
Violet,	Red, Blue, White.
Purple,	Violet with the addition of Red and White.
Gold,	White, Stone Ochre, Red.
Olive,	Yellow, Blue, Black, White.
Chestnut,	Red, Black, Yellow.
Flesh,	White, Yellow Ochre, Vermilion.
Limestone,	White, Yellow Ochre, Black, Red.
Freestone,	Red, Black, Yellow Ochre, White.
Fawn,	White, Yellow, Red.
Chocolate,	Raw Umber, Red, Black.
Drab,	White, Raw and Burnt Umbers; or White, Yellow Ochre, Red, Black.
Bronze Green,	Chrome Green, Black, Yellow; or Black and Yellow; or Black and Green.
Pea Green,	White and Chrome Green.
Rose,	White, Madder, Lake.
Copper,	Red, Yellow, Black.
Lemon,	White, Yellow.
Snuff,	Yellow, Vandyke Brown.
Claret,	Red, Umber, Black.
Dove,	White, Vermilion, Blue, Yellow.
Pink,	White, Vermilion, Lake.
Cream,	White, Yellow.
Salmon,	White, Yellow, Raw Umber, Red.
Straw,	White, Chrome Yellow.
Peach Blossom,	White, Red, Blue, Yellow.
Lilac,	White, with Violet.
Changeable,	Red, Green, lightened with White.

Remarks.—Any of the positive colors are made to any degree of lightness with white or yellow.

Colors for tints work best when mixed with raw oil.

All tints must be graduated by the taste of the artist, recollecting that practice and experience are great helps.

The finer the quality of the colors used, the purer and more beautiful will be the tints.

All colors should be ground before mixing, as the dry color does not stir in well.

Toads.

Toads are among the best friends the gardener has; for they live almost exclusively on the most destructive kinds of vermin. Unsightly, therefore, although they may be, they should on all accounts be encouraged; they must never be touched nor molested in any way; on the contrary, places of shelter should be made for them, to which they may retire from the heat of the sun. If you have none in your garden, it will be quite worth your while to search for them in your walks, and bring them home, taking care to handle them carefully, for although they have neither the will nor the power to injure you, a very little rough treatment will injure them.

Tobacco—To Imitate Porto Rican Cigar Stock.

This is done by means of a mixture of one part each of lemon peel, orange peel, figs, coriander seed, and sassafras; one half part each of elderflowers, elderberries, and cinnamon; two parts of saltpetre, three of salt, and four of sugar. This mixture must be digested in fifty parts of water, and before applying it, flavored with an alcoholic solution of gum benzoin, mastic, and myrrh. It is said that this decoction gives a flavor to common leaves resembling closely the Porto Rico; but to this end the leaves must be well dried, about a year old, well permeated with the preparation, kept in a pile for eight days, turned daily, and finally dried.

Tomatoes—Cultivation of.

Make a hotbed in the customary way about 3x6 feet. On about three square feet at one end, sow your seed 1-16 of an inch thick; cover with $\frac{1}{2}$ an inch of rich, sifted soil. When the plants are 3 inches high, make a trench across the bed, leaving one side at an angle of 52 degrees. Wet the plants so that they can be taken up without injuring the roots. Place them in the trench 2 inches apart. Cover them up to the last leaves by making another trench so near that the rows of plants will be 3 inches apart. When they are from 4 to 6 inches high transplant them into the garden, taking care not to injure the roots. Plants raised as above directed will be very stocky, will not wilt when transplanted, and will ripen their fruit before frost comes.

Tomatoes—Garden Cultivation of.

Set your tomato plants in rows three and a half feet apart, and the same distance apart in the rows. Let the rows be of an even number, and, if possible, running north and south, for the better advantage of the sunshine.

Now, beginning with the first couple of rows, at one end set a pair of stakes in such manner that they will enter the ground just outside of the line of the rows, and cross each other at the height of about four feet over the middle space. Set corresponding stakes at the opposite end of the rows, and also intermediate ones, if necessary.

This done, along the outside of these sloping stakes fasten horizontal strips of edging, beginning with the first about eight inches from the ground, and finishing with the one which will run in the crossing of the stakes.

As the plants grow, carefully train them over this framework, securing

them in place by tying with strings, and judiciously trimming when needed.

After the crop is removed in the fall, the material of this simple structure may be easily taken apart and laid away for use the coming and subsequent seasons.

Tomatoes—French Mode of Pruning.

The French method is as follows: As soon as a cluster of flowers is visible they top the stem down to the clusters, so that the flowers terminate the stem. The effect is, that the sap is immediately impelled into the two buds next below the cluster, which soon push out strongly and produce another cluster of flowers each. When these are visible the branch to which they belong is also topped down to their level, and this is done five times in succession. By this means the plants become stout, dwarf bushes, not over eighteen inches high. In addition to this, all the laterals whatsoever are nipped off. In this way the ripe sap is directed into the fruit, which acquires a beauty, size and excellence unattainable by any other means.

Tongue

Is much more sensitive at the top and along the edges than in the centre. The necessary conditions for 'taste' are—(1) The solution of the substance to be tasted, (2) the presence of a gustatory nerve, and (3) a moist surface to the tongue.

Tools—To Preserve from Rust.

A coating of 3 parts lard and 1 part resin, applied to tools of iron or steel, will effectually prevent rust.

Tools—Art of Grinding.

More than one-half of all the wear and tear, and breakage and bother of dull tools, comes from a lack of proper

knowledge and practice in grinding. All steel, however refined, is composed of individual fibres laid lengthways in the bar, held firmly together by cohesion; and in almost all farm implements of the cutting kind the steel portion which forms the edge, if from a section of a bar, is laid in welded to the bar longitudinally, so that it is the side of the bundle of fibres hammered and ground down that forms the edge-tools, as axes, drawing-knives sickles of reapers, scythes, knives of straw-cutters, etc., in such a manner that the action of the stone is at right angles with the plane of the edge, or, in plainer words, by holding the edge of the tools squarely across the stone, the direction of the fibres will be changed, so as to present the ends instead of the side as a cutting edge. By grinding in this manner a finer, smoother edge is set, the tool is ground in less time, holds an edge a great deal longer, and is far less liable to nick out and to break.

Plane irons should be ground to a bevel of about 35 degrees—chisels and gouges to 30. Turning-chisels may sometimes run to an angle of 45. Molding tools, such as are used for ivory and for very hard wood, are made at from 50 to 60 degrees. Tools for working iron and steel are beveled at an inclination to the edge of from 60 to 70 degrees, and for cutting gun and similar metal range from 80 to 90.

Tool Chests—Household.

Much inconvenience and considerable expense might be saved if it were the general custom to keep in every house certain tools for the purpose of performing at home what are called small jobs, instead of being always obliged to send for a mechanic and pay him for doing little things that, in most cases, could be sufficiently well done by a man or boy belonging

to the family, if the proper instruments were at hand. The cost of these articles is very moderate, and the advantages of having them always in the house are far beyond the expense.

Tools.—List of Useful.

There should be an axe, a hatchet, a saw, a hammer, a tack-hammer, mallet, three or four gimlets and a brace with bits of different sizes, two screw-drivers, two chisels, a small plane, one or two jack-knives, a pair of large scissors or shears, and a carpet fork or stretcher. Also an assortment of screws and nails of various sizes, from large spikes down to small tacks, not forgetting some large and small brass-headed nails, together with hooks of various sizes upon which to hang things.

The nails and screws should be kept in a wooden box, made with divisions to separate the various sorts and sizes, for it is very troublesome to have them mixed. Care should also be taken to keep the supply, lest it should run out unexpectedly, and the deficiency cause delay and inconvenience at a time when some are wanted.

Tool Closet.

It is well to have somewhere, in the lower part of the house, a roomy light closet, appropriated entirely to tools, and things of equal utility, for executing promptly such little repairs as may be required from time to time, without the delay or expense of procuring an artisan. This closet should have at least one large shelf, and that about three feet from the floor. Beneath this shelf may be a deep drawer, divided into two compartments. This drawer may contain cakes of glue, pieces of chalk, and balls of twine of different sizes and quality. There may be shelves at the sides of the closet for glue-pots, paste-pots and

brushes, pots for black, white, green, and red paint, cans of oil and varnish, paint-brushes, etc.

Tools Should be Suspended against the wall, above the large shelf, or laid across nails or hooks of proper size to support them. This is much better than keeping them in a box, where they are apt to be injured by rubbing against each other, and the hand may be hurt in feeling amongst them to find the thing that is wanted. But when hung up against the back wall of the closet, each tool can be seen at a glance.

An excellent and simple Contrivance for designating the exact places allotted to all these articles is to draw on the closet wall with paint or ink a representation in outline of the tool belonging to that particular place. For instance, under each saw is sketched the outline of that saw, under each gimlet a sketch of that gimlet, under the screw-driver are slight drawings of screw-drivers. So that when any tool that has been taken away for use is brought back, the exact spot to which it belongs can be found in a moment; and the confusion which is occasioned in putting tools away in a box and looking for them again when they are wanted, is thus prevented.

Top, Spinning—Upright

Is kept in that position by the combination of two forces—(1) Gravitation, which pulls it downwards to the earth; and (2) centrifugal force, which pulls it horizontally in all directions at once. As soon as the speed becomes too slow to resist the gravitation, the vertical position is lost; but while the speed is great enough to resist the gravitation, the pace is about “a mile a minute.” The motions of the planets are controlled by precisely the same laws.

Tortoise Shell—To Imitate.

In order to do this well, your foundation or ground work must be perfectly smooth and white, or nearly so; you then gild it with silver leaf with slow size, so as to have it perfectly smooth, with no ragged edges, cleaning the loose leaf off. Then grind Cologne earth very fine, and mix it with gum water and common size; and with this, having added more gum water than it was ground with, spot or cloud the ground work, having a fine shell to imitate; and when this is done, you will perceive several reds, lighter and darker, appear on the edges of the black, and many times lie in streaks on the transparent part of the shell. To imitate this finely, grind sanguis draconis with gum water, and with a fine pencil draw those warm reds, flushing it in about the dark place more thickly; but fainter and fainter and thinner, with less color towards the lighter parts, so sweetening it that it may in a manner lose the red, being sunk in the silver or more transparent parts. When it is dry, give it a coat of varnish, let it stand a few days, then rub it down with pumice stone and water. Then grind gamboge very fine, and mix with varnish, giving of this as many coats as will cause the silver to have a golden color, then finish with a clean coat of varnish.

Toys—Varnish for.

Copal, 7 parts; mastic, 1 part; Venice turpentine, $\frac{1}{2}$ part; strongest alcohol, 11 parts. Dissolve the copal first, with the aid of a little camphor, then add the mastic, etc., and thin with alcohol as required.

Tracings—To Photograph Without a Camera.

Lay out several thicknesses of cloth, on a smooth drawing board, on top of which place a sheet of sensitized paper, superimpose the same with the

drawing, right side up, and press the whole down perfectly smooth with a piece of glass which is to be kept in place by clothes pins and weights, and expose it under the skylight until the edges of the paper show a sufficient dark impression, when it is to be removed, toned, and fixed. In this manner an exact copy of a drawing can be made, the only difference, as a matter of course, will be, the lines will be white and the body of the paper dark, which is of no disadvantage whatever.

Trades Injurious to Teeth

Are specially those connected with mercury, chloride of lime (for bleaching, etc.), phosphorus for matches, etc.), soda, etc.

Trance

Is distinguished from normal sleep in (1) duration, (2) insensibility to external impressions, (3) following excitement rather than fatigue. It is a species of hysteria.

Transparencies—To Make.

Take some prettily colored landscape and cut a slit into the broad lights of it with a penknife; put a white paper of medium thickness behind it, and interline with orange or rose-colored paper; bind the three—that is the landscape, the colored paper, and the paper which forms the back—together with some suitable color for a frame; now separate the cut edges of your landscape by pressing them apart. Hang up in the window, and when the sun shines through, the effect is beautiful. Try it; we are sure you will be pleased.

An engraving prepared as for Grecian painting is very pretty for a screen or to hang in the window. Lamp shades may be made in this way, and many pretty designs will suggest themselves; bouquets, wreaths, vines running round the shade, etc. Also still more

beautiful is the antique style, before painting.

Trappers, Hints to—Valuable versus Worthless Skins.

The skins of animals trapped are always valued higher than those shot, as shot not only make holes, but frequently plow along the skin making furrows as well as shaving off the fur. To realize the utmost for skins they must be taken care of, and also cleaned and prepared properly. Newhouse gives these general rules derived from experience.

Be careful to visit your traps often enough, so that the skin will not have time to get tainted.

As soon as possible after an animal is dead and dry, attend to the skinning and euring.

Scrape off all superfluous flesh and fat, and be careful not to go so deep as to cut the fiber of the skin.

Never dry a skin by the fire or in the sun, but in a cool, shady place, sheltered from rain. If you use a barn door for a stretcher (as boys sometimes do), nail the skin on the inside of the door.

Never use "preparations" of any kind in euring skins, nor even wash them in water, but simply stretch and dry them as they are taken from the animal.

Trapping—Season for.

All furs are best in winter; but trapping may be carried on to advantage for at least six months in the year—i. e. any time between the first of October and the middle of April. There is a period in the warm season, say from the first of May to the middle of September, when trapping is out of the question, as furs are worthless. The most trapping is done late in the fall, and early in the spring. The reason why furs become worthless in summer is, that all fur-bearing animals shed their coats, or at least, lose the finest

and thickest part of their fur as warm weather approaches, and have a new growth of it in the fall to protect them in winter. This whole process is indicated in the case of the muskrat, and some other animals, by the color of the inside part of the skin. As summer approaches, it becomes brown and dark. That is a sign that the best fur is gone. Afterward it grows light-colored, and in winter when the fur is in the best condition it is altogether white. When the pelt is white it is called prime by the fur-dealers. The fur is then glossy, thick, and of the richest color, and the tails of such animals as the mink, marten, and fisher are full and heavy. Beavers and muskrats are not thoroughly prime till about the middle of winter. Other animals are prime about the first of November. There is probably some variation, with the latitude, of the exact period at which furs become prime, the more northern being a little in advance. Trappers are liable to begin trapping too early in the season, consequently much poor fur is caught, which must be sold at low prices, and is unprofitable to the trapper, the fur-buyer, and the manufacturer.

Traps, Setting.

The first thing to secure in setting your trap, is that the animal will go to it; second, that it shall catch him when he comes; and last, that he shall not be able to get away, when once caught. Next, it is necessary always to smoke the trap in burning hemlock, cedar, or juniper boughs, dipped in the blood of pigs that have just been killed, or letting the blood of a chicken run over it, dipping it in melted fat or rubbing it while warm with a ball of beeswax. But remember that in baiting a rabbit trap your hands must never be greasy; there is nothing a rabbit will so quickly avoid as grease of any kind.

Now having arranged this, your next business must be to induce your animal not to be shy. If you are carrying on trapping in wild woods the surrounding scenery is generally wild enough, but near at home, on the farm, care must be taken to take away the appearance of preparation, and yet preparation must be made. A cautious animal such as a fox or raccoon, should be invited to come several times before the trap is set; arrange a place with sawdust, hay-seed, chaff, and chicken feathers, several inches deep, scatter through it food adapted to the animal intended to be caught, offal of chickens, bones, and bits of waste meat, fish heads, etc., if for fox; nubbins of corn, etc., for coon; leave it and when you have certain indications, set your trap (free from the iron smell) and cover with the material you have used, scattering bits of food therein as before; the creature you are after will probably be there the next morning, if you have properly secured your trap. Another way is to set your trap under water two or three inches with the bait above it, hung upon a sapling or spile so as to make the animal stand upon the trap to get it, or to plant your trap well covered at the foot of an old stump, by the side of a sapling, by the side of a barn, hay-stack, smoke house, pig pen, but always covering the trap and hanging the bait above it, so as to make the animal step into it.

Last of all you must secure the trap by a weight of wood or metal, by a bent sapling that pulls it up into the air, or by a weight or stick that will pull it into the water and drown it. A short light chain ought to be attached to every trap of iron,

as animals gnaw with ease through anything like rope or hide. If you are catching animals only to get rid of a nuisance, no spring is necessary, but if for fur, you want to hoist the land animals into the air, where they cannot damage themselves, and if water animals, you want to drown them quickly. The former result is attained by bending over a sapling with a stout cord attached, containing the bait; a portion of the cord continues down to the trap and is fastened slightly by a notched peg driven into the ground; when the animal is caught its struggles free the cord, and the sapling springs back and hoists it into the air. If your trap is set in water it may be fastened by a ring at the end of the chain to a pole running out into deep water, the pole should be fastened into its position and securely anchored, or the whole thing may be rolled far down the stream when you come to look for it; the struggles of the animal caught cause the ring to go farther and farther down the stick and the weight of the trap finally drowns the animal.

Traps—Baiting.

Strong smelling substances are the best baits, other things being equal; and if the smell of the kind of animal to be caught can be given to the bait in any way, it will be sure to lure the animal to the trap. If a fox skin be dragged along the ground in the direction of the trap, every fox, striking the trail will follow it up. So it is with other animals. Beaver bait is made thus: The castor or bark-stone, which is found in the male beaver, is pressed from the bladder-like bag which contains it into a vial with a wide mouth. Five or six of these stones are taken, and a powdered nutmeg, a dozen or more cloves, a teaspoonful of ground cin-

namon, all mixed with alcohol or whiskey until it is about as thick as good syrup, cork the bottle and keep three or four days. In using this it should be employed for attracting the beaver toward the trap, but not to be put into it. For the beaver has a habit when he smells the bark-stone of another beaver of covering it with leaves and twigs and then voiding his own bark-stone or scent upon it. Doing this, he would be more likely to cover the trap than to be caught. What may be the object of this is of course unknown; but it is similar to the voiding of urine by dogs, foxes, and wolves in spots already used by another animal for the same purpose.

But the beavers will take any fresh root or sapling for bait. The muskrat will take carrots, potatoes, apples, or any similar food. All of the weasel tribe—the mink, sable, fisher, skunk, ordinary weasel, etc.,—will take fish, fresh or salt. When using the latter, it should be toasted, so as to emit more smell. Old hunters, to get a good "fish smell," cut up any small fish, put the pieces into a bottle, and let it be in as warm a place as convenient for several days. As it decays the fish oil rises and this oil they put on any bait they happen to have. All of the weasel tribe, as well as foxes and wolves, are fond of any kind of fowl. The heads and legs and any other waste parts of wild and domestic fowl are the best of bait. Even feathers scattered around the trap make the thing more attractive and real. A little musk mixed with assa-fetida, or mixed like the bark-stone, or even a muskrat skin, fixed so as to drag along the ground toward a trap, will make most of this tribe, follow it up to the trail. A strong piece of codfish will do the same.

Some old hunters just keep one of these trail-bags tied by a string to their belt and let it drag as they go from trap to trap. This multiplies their chances of having something in them next morning. Another secret of old hunters is to take the parts peculiar to the sex of the female wolf, fox or dog, and preserve it in alcohol or whiskey for use. A small piece of this is used in drawing either fox or wolf to traps, and proves irresistible to the male, and no matter from which species it is taken, it proves alike attractive to either fox or wolf. It is not used as a bait, that is as food, but as the trail or drag, to bring the animal toward the trap. The trap may be baited as usual, or this substance may be suspended over the trap; in trying to reach it, to smell at it, the animal steps into the trap. Foxes, wolves and all the weasel tribe will take flesh and fish of any kind with this exception: foxes, wolves (and dogs) will not eat their own kind; weasels of every kind will. Toasted cheese forms a strong allurement for a fox. The bear will go anywhere for honey, and it is usual to smear this over a piece of pork or beef, or even upon an ear of corn, or just to smear it on the tree or stump near where the trap is set. The skunk considers mice a dainty, and raccoons will travel far for frogs, fish (broiled), salt or fresh; but an ear of corn is not disdained by them. Squirrels take Indian corn, nuts, etc. Woodchucks will take roots, corn and bread. Wild cats take flesh or fish of any kind. In the northwest they are also taken with the bark-stone bait previously described. In arranging traps for small birds hemp-seed will be found more attractive than any other. Buckwheat is perhaps more attract-

ive for quails than any other grain. Otters, also, can be caught with the various grains—the small grains being best.

Trap, Dead Fall.

The simplest dead fall is made with one log, heavy enough to hold the creature which it is proposed to trap. Cut a notch in a stump, or drive a short stake with a notch in it, or fasten the log with a withe to a stake or sapling, or in any case allow it a hinge-like motion. This is done with the log lying on the ground. Raise one end and support it upon a figure four, baited of course. The bait stick of the figure four must be at right angles with the log, and enclosed with stakes or otherwise to allow the animal to approach only from one side, and obliging it to stand across the line in which the log would fall. Another way is to arrange two logs, one to fall on the other in the same way. Stakes may be driven at the side, if found necessary, to insure one log falling on top of the other.

Trap, Farmers'—For Mink, Weasels, Skunks, etc.

Take boards $\frac{1}{2}$ inch thick, and make a box the two sides and top 12 inches long, with one end closed; the size of the box inside being 4 inches square. A steel spring is fastened on the closed end of the box, to which is fastened a square ring at its extremity, through which the game thrusts its head to reach the bait at one end of a catch, which holds the ring depressed, and held by a wire running from the front end of the trap to the catch on the upper extremity of the bait hook. One who has tried it extensively says: "This is the best trap for skunks in the world, I believe. I have used many different kinds,

but none works so well as this. You can set it at the hole in a wall or fence. It is sure fire."

Trees—Average Growth of.

The Illinois Horticultural Society appointed a committee to prepare a report on the cultivation and growth of forest trees. The committee concluded an able report by saying: "As the results of our observations and from the testimony of reliable men, we regard the following as about the average growth in twelve years, of the leading desirable varieties, when planted in belts or groves and cultivated as directed:—White Maple, 1 foot in diameter and 30 feet high. Ash-leaf Maple, 1 foot in diameter and 20 feet high. White Willow, 1½ feet in diameter and 40 feet high. Yellow Willow, 1½ feet in diameter and 35 feet high. Lombardy Poplar, 10 inches in diameter and 40 feet high. Blue and White Ash, 10 inches in diameter and 20 feet high. Chestnut, 10 inches in diameter and 20 feet high. Black Walnut and Butternut, 10 inches in diameter and 20 feet high. Elm, 10 inches in diameter and 20 feet high. Birch (varieties), 10 inches in diameter and 25 feet high. Larch, 8 inches in diameter and 24 feet high. The different varieties of evergreens will make an average growth of eighteen to twenty inches in height annually."

From these and other data, which the intelligent farmer can collect, he may readily approximately estimate the cost of fence posts, rails, fire-wood, hewing timber, lumber, etc.

Trees, Shade and Forest— Value of.

Some people flee to the woods for health, get it, and then consent to the destruction of shade trees in front of their city residences, says

Popular Science Monthly. Dr. Oswald shows that forests and population have a relation worth noting. Where the forests have disappeared the population has dwindled. He writes:

"Spain, in the glory of her ancient woodlands was the Eden of Southern Europe: treeless Spain has become a gehenna of poverty and disease. Forest-shaded Sicily begat athletes and philosophers, heroes and merchant princes; Sicily, in its present sun-blistered condition, evolves chiefly bandits, beggars and vermin. The entire coast region of the Mediterranean has been "cleared," with the result of losing four-fifths of its former population, and at least nine-tenths of its former productiveness.

The same in Southern France, in Portugal, Asia Minor, Mesopotamia, Armenia, Persia, and Hindoostan.

It might indeed be questioned if all human follies and crimes taken together have caused as much permanent mischief as the insane destruction of nature's safeguards against life-blighting droughts.

We wonder if Americans will learn these truths in time to save or restore our forests. Farmers should plant trees.

Trees (Shade)—Best to Plant.

A moderate number of trees are necessary on every farm, both for shelter and shade. Some farms have been completely denuded by the ax of the wood-chopper, and as screens and shade trees are almost indispensable, the most desirable and profitable are black walnut and sugar maple. The walnuts will bear abundantly in 8 or 10 years from the time of planting, and the timber will be increasing in value every year. The sugar maple gives a beautiful shade, and its product is exceedingly valuable. It is a good plan

to raise the trees in some corner of the orchard or garden until they have become strong. The catalpa tree is a beautiful shade tree, and its wood is excellent for posts and poles.

Trees, Oak.

The process of deforesting our lands upon the Atlantic border has gone on for centuries, and in the very populous States has necessitated replanting. It is a fact not sufficiently known, that oaks may be rapidly grown, and will develop, within an ordinary lifetime, fine groves of those noble trees which give so much dignity to an old homestead. Major Ben. Perley Poore has upon his estate in Massachusetts a splendid oak forest or wood of 30 acres, every acorn for which was planted by himself 30 years ago. The trunks of the trees are now $1\frac{1}{2}$ feet in diameter.

Tree's Height from its Shadow.

Set a stick quite upright in the ground so that the shadow falls beside the shadow of the tree; then, as the length of the stick's shadow to the stick's height, so is the length of the tree's shadow to the tree's height. That is to say, multiply the length of the tree's shadow by the height of the stick, and divide the result by the length of the stick's shadow.

Tuba Root.

The roots of a plant known in Borneo by the name tuba or tooba, are much valued in that country for destroying vermin on plants and animals. They are thrown into water and allowed to stand a short time, after which the animals or plants are washed with the water. It is said that the infusion is very deadly to the vermin, but innocuous to the plant and animals. The roots are used while fresh, and are be-

lieved to lose their properties in drying. They are also used constantly for poisoning fish in pools. The plant is one of the Leguminosæ.

Turkeys.

Turkeys are bred quite largely and are very profitable if bred where they can have perfect liberty to range over the country and hunt their own living, but they do not endure confinement and it is hard to rear them in limited enclosures. The Bronze and the White varieties are the most popular.

Turkeys—Charcoal for.

A recent experiment has been tried in feeding charcoal for fattening turkeys. Two lots of four each were treated alike, except for one lot finely pulverized coal was mixed with mashed potatoes and meal, on which they were fed, and broken pieces of coal also plentifully supplied. The difference in weight was one and a half pounds each in favor of the fowls supplied with coal, and the flesh was superior in tenderness and flavor. This suggestion is well worth a fair trial from those engaged in turkey-raising.

Turkeys—To Rear.

First, a quiet hen is to be sought for as a sitter, and when such a one is obtained, the next care is to give her a quiet and rather secluded place for her nest while sitting, which is of more importance than some who do not give themselves the trouble to care for such small matters, think. Bronze turkeys are large birds, and will cover 15 to 18 eggs with ease; while sitting they should not be disturbed, and should not be taken from the nest after hatching for at least 24 hours, or longer, if she sits contented, as the young chicks gain strength very fast by.

being kept quiet for a day or two at first. If the hen is quite gentle, (as she should be, if possible,) it is best to watch the hatching process, and if a chick is not likely to come out strong, the shell may sometimes be broken, and the chick saved; in taking the hen with her brood from the nest, she should have a large, airy coop, where the grass is closely mown off, where the chicks can bask in the sun at pleasure, and have quite a run for exercise, and the picking up of bugs and insects.

The feed should be mostly curds, made from sour milk heated, and the whey drained off and seasoned with pepper. After a few days, according to their strength and the quietness of the hen turkey, they should have the range of the farm. At first, a small portion of the day, after the dew is all off. They should be housed at night, and not let out till the wet is off the grass in the morning; then by liberal feeding whenever they come near their roosting quarters, they will be healthy and grow very fast—especially if grasshoppers are plenty, as they are some years in most sections of the country. When it is the time for the fattening season, they should then have all the good food they will eat, of a

variety such as corn, buckwheat, boiled potatoes, chopped cabbage, etc., and if kept where they can get what they will eat when they want it, they will fatten very fast.

Turnips, Fly on—To Destroy.

Take 1 bushel of newly slaked lime, and mix therewith $\frac{1}{2}$ a bushel of wood ashes; mix and blend the whole intimately together, and sift the powder lightly along the top of the drills.

Twilight.

Twilight is the reflection of sunlight from the higher levels of the atmosphere which are still lighted by the sun after it has become invisible from ordinary levels. Even when the sun is in the zenith of a cloudless sky, one-fifth of the light on any given area of the earth's surface is reflected from other parts of the sky than that through which the beams reach directly to that area. When the sun is just above the horizon, more than two thirds of the total light is thus reflected; and when the sun is just below the horizon, all the light comes in this way. The duration of twilight, however, varies greatly—from practically nothing at the Equator to continuous light in the land of the "Midnight Sun."

U

Ultramarine.

A vitreous matter colored by oxide of cobalt, gives a tone of color different from that of prussiate of iron and indigo. It is employed for sky-blues. The case is the same with blue verditer, a preparation made from oxide of copper and lime. Both these blues stand well in distemper, in varnish, and in oil.

Saxon blue requires to be ground with drying oil, and to be mixed with gallipot varnish. If intended for oil

painting, it is to be mixed up with resinous drying oil, which gives body to this vitreous matter.

Ultramarine—To Know When Adulterated.

As the price of ultramarine is high, and may become more so on account of the difficulty of obtaining lapis lazuli, it is of great importance that painters should be able to detect adulteration. Ultramarine is pure, if when brought

to a red heat in a crucible, it stands that trial without changing its color; as small quantities only are subjected to this test, a comparison may be made at very little expense, with the part which has not been exposed to the fire. If adulterated it becomes blackish or paler.

This proof, however, may not always be conclusive. When ultramarine of the lowest quality is mixed with azure, it exhibits no more body than sand ground on porphyry would do; ultramarine treated with oil assumes a brown tint.

Umbrellas—To Make Last Twice As Long As Usual.

Most persons, when they come in from the rain, put their umbrellas in the rack with the handle upward. They should put it downward; because when the handle is upward the water runs down inside to the place where the ribs are joined to the handle, and cannot get out, but stays, rotting the cloth and rusting the metal until slowly dried away. The wire securing the ribs soon rusts and breaks. If placed the other end up, the water readily runs off, and the umbrella dries almost immediately.

V

Varnishing.

All work before being varnished, should be prepared with a dead surface, either by mixing with turpentine or by rubbing down with pumice stone. In very finely finished work, requiring a level surface, rub down with solid pumice stone and water; where only smoothness is necessary, rub with pulverized pumice stone with water, using for a rubber any woolen cloth, or felt, or buckskin.

The First Coats should be spread on evenly and well rubbed out. Two, or four, or six coats may be given without rubbing; then, previous to the last coat, rub till the gloss is destroyed, after which give it a heavy flowing coat.

The Flowing Coat.—Where work is to be finished on a cheaper plan, the rubbing need not be done. In this case give two or three coats, well rubbed out, and while the last coat is quite sticky, so as to make the brush drag through a little toughly, put on a heavy flowing coat of thick varnish—put on so heavily that it will flow evenly of itself. This, after thoroughly dry, may be polished.

Finishing.—Rub down with finely pulverized pumice stone till smooth and even; wash off. Then rub with rotten stone and sweet oil. Clean off the oil, and polish with chamois leather. Some use only the hand to finish with, which is quite as good after being rubbed with rotten stone and sweet oil. If the under coats of paint are not thoroughly dry, the varnish will be apt to crack.

Varnishing—Cleaning Paint Previous to.

Provide a plate with some of the best whiting to be found in the market, and have ready some clean, warm water and a piece of flannel, which dip into the water and squeeze nearly dry; then take as much whiting as will adhere to it; apply it to the painted surface, when a little rubbing will instantly remove any dirt or grease; after which wash the part well with clean water, rubbing it dry with a soft cloth or chamois. Paint thus cleaned looks as well as when first laid on, without any injury to the most delicate colors. It is far better than cleaning it with soap,

and does not require more than half the time usually employed in cleaning with that article.

Varnishes—Care of.

As a rule all varnishes should be kept in a dry place (there may be few exceptions), otherwise they are liable to become tacky. It should also be observed that they should be applied in a dry place. Much, indeed, depends upon the state of the weather when they are employed—more than is easily credited—and the work should be kept in a warm place until thoroughly dry.

All varnishes in which spirits of wine is the menstruum should be used in a warm place.

Varnish Brushes—Care of.

Brushes used for applying finishing varnishes should be cared for with the utmost pains, as good work depends much upon the good condition of the brushes. A good way to keep them is to suspend them by the handles in a covered can, keeping the points at least half an inch from the bottom, and apart from each other. The can should be filled with slow-drying varnish up to a line about a sixteenth of an inch above the bristles or hair. The can should then be kept in a close cupboard, or in a box fitted for the purpose. As wiping a brush on the sharp edge of tin will gradually split the bristles, cause them to curl backward, and eventually ruin the brush, the top of the can should have a wire soldered along the edge of the tin turned over, in order to prevent injury. Finishing brushes should not be cleaned in turpentine, except in extreme cases. When taken from the can, prepare them for use by working them out in varnish, and before replacing them, cleanse the handles and lining with turpentine.

Varnish—Black Japan.

Burnt umber, 3 ounces; true asphaltum, 3 or 4 ounces; boiled linseed oil, 1 gallon; grind the umber with a little of the oil; add it to the asphaltum, previously dissolved by heat in a small quantity of the oil, mix, add the remainder of the oil, boil, cool, and thin with a sufficient quantity of oil of turpentine. Flexible.

Varnish (Black), for Coal Buckets.

Asphaltum, 1 lb; lamp-black, $\frac{1}{4}$ lb; rosin, $\frac{1}{2}$ lb; spirits of turpentine, 1 quart. Dissolve the asphaltum and rosin in the turpentine; then rub up the lamp-black with linseed-oil, only sufficient to form a paste, and mix with the others. Apply with a brush.

Varnish, Flexible—For Balloons and Gas Bags.

India rubber in shavings, 1 oz.; mineral naphtha, 2 lbs.; digest at a gentle heat in a close vessel till dissolved, and strain.

Another.—India rubber, 1 oz.; drying oil, 1 quart; dissolve by as little heat as possible, employing constant stirring, then strain.

Another.—Linsced oil, 1 gallon; dried white copperas and sugar of lead, of each 3 oz.; litharge, 8 oz.; boil with constant agitation till it becomes stringy, then cool slowly and decant the clear. If too thick, thin it with quick-drying linseed oil. The above are used for balloons, gas bags, etc.

Varnish—For Glass.

Pulverized gum tragacanth, white of egg, equal quantity. Stand till dissolved. Spread on the glass carefully with a brush.

Varnish—Glaze.

Powdered sealing wax, $\frac{1}{2}$ ounce; alcohol, 95 per cent., 2 ounces. Keep

in a bottle in a warm place till the wax is dissolved.

This varnish gives a beautiful glazed polish to paper, straw, leather, and such things.

Varnish—Gold.

Pulverized gum copal, 1 ounce; oil of lavender, 2 ounces; turpentine, 6 ounces. Put the oil in a pan on hot sand. When warm, add the turpentine and copal.

Varnish—Gold.

Turmeric, 1 dram; gamboge, 1 dram; turpentine, 2 pints; shellac, 5 ounces; sandarac, 5 ounces; dragon's-blood, 8 drams; thin mastic varnish, 8 ounces; digest with occasional agitation for fourteen days; then set aside to fine and pour off the clear.

Varnish—Gold-colored Copal.

Take copal in powder, 1 ounce; essential oil of lavender, 2 ounces; essence of turpentine, 6 ounces.

Put the essential oil of lavender into a mattress of a proper size, placed on a sand-bath heated gently. Add to the oil, while very warm and at several times, the copal powder, and stir the mixture with a stick of white wood rounded at the end. When the copal has entirely disappeared, add at three different times the essence almost in a state of ebullition, and keep continually stirring the mixture. When the solution is completed, the result will be a varnish of a gold color, exceedingly durable and brilliant.

Varnish—Green.

There is a most beautiful transparent green varnish employed to give a fine, glittering color to gilt or other decorated work. The process is as follows: Grind a small quantity of a peculiar pigment, called "Chinese blue," along with about double the quantity of finely powdered chromate of potash, and a sufficient quantity of copal varnish

thinned with turpentine. The mixture requires the most elaborate grinding or incorporating of its ingredients, otherwise it will not be transparent, and therefore useless for the purpose for which it is intended. The "tone" of the color may be varied by an alteration in the proportion of the ingredients; a preponderance of chromate of potash causes a yellowish shade in the green, as might have been expected, and vice versa with the blue under the same circumstances. This colored varnish will produce a very striking effect in japanned goods, paper-hangings, etc., and can be made at a very cheap rate.

Varnish—Gum Elastic.

India rubber, cut fine, $\frac{1}{2}$ pound; linseed oil, $\frac{1}{2}$ pound; turpentine, $\frac{1}{2}$ pound. Add the gum to the oil while boiling. When dissolved, add the turpentine. Boil the whole till clear, and strain. Dries slowly; if desired to dry quicker, use boiled oil. This varnish is brilliant, durable, and makes the cloth pliable.

Varnish—Impermeable.

Boiled oil, 100 parts; finely powdered litharge, 6 parts; genuine bee's-wax, 5 parts. Boil until sufficiently thick and stringy, then pour off the clear.

Varnish—India Rubber.

Digest India rubber, cut into small pieces, in benzine for several days, frequently shaking the bottle containing the materials. A jelly will be formed, which will separate from the benzine; this dissolved in the fixed and volatile oils, dries fast, does not crack or shine, unless mixed with some resinous substance.

Varnish—For Iron.

The following is a method given by Mr. Weizkopf of producing upon iron a durable, black, shining varnish:—

"Take oil of turpentine, add to it, drop by drop, and while stirring, strong sulphuric acid until a syrupy precipitate is formed, and no more of it is produced on further addition of a drop of acid. The liquid is now repeatedly washed with water, every time refreshed after a good stirring, until the water does not exhibit any more acid reaction on being tested with blue litmus paper. The precipitate is next brought upon a cloth filter, and after all the water has run off, the syrupy mass is fit for use. This thickish magma is painted over the iron with a brush; if it happens to be too stiff, it is diluted with some oil of turpentine. Immediately after the iron has been so painted, the paint is burnt in by a gentle heat, and, after cooling, the black surface is rubbed over with a piece of woolen stuff dipped in, and moistened with linseed oil." According to the author this varnish is not a simple covering of the surface, but it is chemically combined with the metal, and does not, therefore, wear off, or peel off, as other paints and varnishes do, from iron.

Varnish—For Iron and Steel.

Dissolve 10 parts of clear grains of mastic; 5 parts of camphor; 15 parts of sandarac, and 5 of elemi, in a sufficient quantity of alcohol, and apply this varnish without heat. The articles will not only be preserved from rust, but the varnish will retain its transparency and the metallic brilliancy of the articles will not be obscured.

Varnish (Anti-Rust)—For Iron and Steel.

Resin, 120 parts; sandarac, 180 parts; gum lac, 60 parts; essence of turpentine, 120 parts; rectified alcohol, 180 parts. Pound the first three ingredients, digest them by a regular heat until they are melted, and add the turpentine very gradually. After com-

plete solution has taken place, add the alcohol, and filter through fine cloth or thick filtering-paper. The varnish should be kept in well stoppered bottles.

Varnish—Italian.

Boil Scio turpentine till brittle, powder, and dissolve in oil of turpentine.

Another.—Canada balsam and clear white resin, of each 6 ounces; oil of turpentine 1 quart; dissolve. Used for prints, etc.

Varnish—Japan.

Gum shellac, 2 pounds; oil, 1 gallon; red lead, 1 pound; litharge, 1 pound; umber, $\frac{1}{4}$ pound. Melt the gum in a small quantity of oil, and then add it, gradually, to the other oil while it is boiling. Boil the whole till stringy.

This is a good, strong dryer, which gives to the paint a high gloss.

Varnish—Lac.

Seedlac, 3 oz.; turmeric, 1 oz.; dragon's-blood, $\frac{1}{4}$ oz.; alcohol, 1 pint; digest for a week, frequently shaking, decant and filter. Deep gold colored.

Gold Colored.—Ground turmeric, 1 pound; gamboge, $1\frac{1}{2}$ oz.; gum sandarac, $3\frac{1}{2}$ lbs.; shellac, $\frac{3}{4}$ lb.; all in powder; rectified spirit of wine, 2 gallons; dissolve, strain. and add turpentine varnish, 1 pint.

Red Colored.—Spanish annotto, 3 lbs.; dragon's-blood, 1 lb.; gum sandarac, $3\frac{1}{4}$ lbs.; rectified spirit, 2 gallons; turpentine varnish, 1 quart; dissolve and mix as the last.

Pale Brass Colored.—Gamboge cut small, 1 oz.; Cape aloes, cut small, 3 oz.; pale shellac, 1 lb.; rectified spirit, 2 gallons; as the last.

Another.—Seedlac, dragon's-blood, annotto, and gamboge, of each $\frac{1}{4}$ lb.; saffron, 1 oz.; rectified spirit of wine, 5 quarts; as last.

Lacquers are used upon polished metals and wood to impart the appearance of gold. As they are wanted of

different depths and shades of color, it is best to keep a concentrated solution of each coloring ingredient ready, so that it may at any time be added to produce any desired tint.

Varnish—Mastic.

Very pale and picked gum mastic, 5 lbs.; glass pounded as small as barley, and well washed and dried, $2\frac{1}{2}$ lbs.; rectified turpentine, 2 gallons; put them into a clean four-gallon stone or tin bottle, bung down securely, and keep rolling it backwards and forwards pretty smartly on a counter or any other solid place for at least 4 hours; when, if the gum is all dissolved, the varnish may be decanted, strained through muslin into another bottle, and allowed to settle. It should be kept for six or nine months before use, as it thereby gets both tougher and clearer.

Varnish—Mahogany.

Sorted gum anise, 8 lbs.; clarified oil, 3 gallons; litharge and powdered dried sugar of lead, of each $\frac{1}{4}$ lb.; boil till it strings well, then cool a little, thin with oil of turpentine, $5\frac{1}{2}$ gallons, and strain.

Varnish—Oak.

Clear, pale resin, $3\frac{1}{2}$ lbs.; oil of turpentine, 1 gallon; dissolve.

Another.—Clear Venice turpentine, 4 lbs.; oil of turpentine, 5 lbs.; mix. Both are good common varnishes for wood or metal.

Varnish—Oil.]

Resin, 3 lbs.; melt, add Venice turpentine, 2 lbs.; pale drying oil, 1 gallon; cool a little and thin with oil of turpentine, 1 quart.

Another.—Resin, 3 lbs.; drying oil, $\frac{1}{2}$ gallon; melt and thin with oil of turpentine, 2 quarts. Both the above are good varnishes for common work.

Varnish—Seedlac.

Wash three ounces of seedlac in several waters, dry it, and powder it coarsely. Dissolve it in one pint of rectified spirits of wine, put it in a gentle heat, shaking as often as convenient, until it appears dissolved, pour off the clear, and strain the remainder.

Varnishes—Shellac.

Gum shellac, $\frac{1}{4}$ pound; alcohol, 1 pint. Keep in a warm place till the gum is dissolved.

Uses.—This makes a splendid polish for any fine article of furniture, guns, etc. It is best rubbed on with a cloth; moisten the cloth with the polish and rub over the work briskly. It dries in a moment, and twenty coats may be put on in as many minutes. It is also a good (perhaps the best) thing for killing gnats, and is altogether a very useful article, and no paint-shop should be without it. Rough and weather-beaten signs, cloth, and such-like may be coated with it, which will make the work hold up the color better. Dry paints may also be ground in it, for painting signs on cloth or paper. It holds the colors from flying, and will stand the weather.

Varnishes—Stone-like.

The method of coating wood with a varnish as hard as stone has been introduced into Germany: The ingredients are forty parts of chalk, forty of resin, four of linseed oil, to be melted together in an iron pot. One part of native oxide of copper and one of sulphuric acid are then to be added, after which the composition is ready for use. It is applied hot to the wood with a brush, in the same way as paint, and as before observed becomes exceedingly hard on drying.

Varnishes (Tar)—For Wood or Iron.

One gallon of coal tar, half a pint of spirits of turpentine, two ounces of oil

of vitriol, stirred and laid on like paint. Mix, with a piece of wood or stick, the tar and vitriol, and then add the turpentine, and apply with a brush. Mix no more than you can use at once, and then apply it as it becomes thick.

Varnish—For Tools.

Take tallow, 2 oz.; resin, 1 oz.; and melt together. Strain while hot, to get rid of specks which are in the resin; apply a slight coat on your tools with a brush, and it will keep off rust for any length of time. A little black-lead or plumbago adds to its value.

Varnish—Turpentine.

Resin, 5 pounds; turpentine, 1 gallon. Boil till the resin is dissolved.

Varnish—Water Proof.

An excellent waterproof varnish, without alcohol, for various articles, is prepared by taking three parts, by weight, of pale shellac, one part of spirits of sal ammoniac, and six or eight of water, and shaking them together in a bottle, to be then corked up for twelve hours. This is then placed in an earthen vessel over a fire, and boiled, with constant stirring, till the shellac is dissolved. This solution replaces to great advantage the alcoholic solution of shellac; and when mixed with about twelve parts of water, with the addition of terra de Sienna or ochre, can be used in the preparation of oil cloths. After a little exposure to the air, the ammonia evaporates, and leaves a layer entirely impervious to, and unaltered by water. The same solutions may also be made in various combinations for staining wood of a brown color, and rendering it at the same time waterproof.

Varnish—White Copal.

White oxide of lead, ceruse, Spanish white, white clay. Such of these substances as are preferred ought to be carefully dried. Ceruse and clay ob-

stinately retain a great deal of humidity, which would oppose their adhesion to drying oil or varnish. The cement then crumbles under the fingers, and does not assume a body.

Varnish—White China.

There are two kinds of varnish used to produce the white gloss; one a solution of colorless resin in turpentine; the other in alcohol. For the first, pure copal varnish is taken; for the second, 16 parts of sandarac are dissolved in sufficiently strong alcohol, to which are added 3 parts of camphor; and lastly, when all are dissolved by shaking, 5 parts of Venetian turpentine are added. Set for some days in the sun till clear. However, in order to cause the color to remain a pure white, care must be taken not to mix oil with the white paint put on previously. Best zinc white is the best, mixed with turpentine; when dry, rub down with fine sand-paper, and put on another coat, and repeat this if required, and lastly put on the varnish described.

Varnish—White, Hard.

Gum mastic, 1 pound; gum anise, 4 ounces; gum sandarac, 5 ounces; alcohol, 95 per cent. 2 ounces. Add all together, put in a warm place, and shake often. When the gums are dissolved, strain through a lawn sieve.

Varnish—To Polish.

Take two ounces of tripoli powdered, put it in an earthen pot, with water to cover it; then take a piece of white flannel, lay it over a piece of cork or rubber, and proceed to polish the varnish, always wetting it with the tripoli and water. It will be known when the process is finished by wiping a part of the work with a sponge, and observing whether there is a fair, even gloss. When this is the case, take a bit of mutton suet and fine flour, and clean the work.

Varnish—For Paper.

Colored designs would be more simply and satisfactorily varnished by first giving a coat of good gum arabic, and then of varnish of about equal parts of turpentine and Canada balsam. Colors mixed with gum may be used over Indian ink, even on tracing-cloth, without smearing. For maps or lithographs, good white starch (two coats or more) answers better, at less cost, than the common isinglass recommended in receipt-books, followed by the above varnish. A lithographed picture well done with thick varnish looks almost as if glazed, or, in other cases (with borders cut off), like an oil-painting.

Varnish—For Prints, etc.

This is made by eight parts of gelatine glue being mixed with one part alum, and half part Marseilles soap, in boiling water. The glue being first well dissolved, the alum and soap are added; all is then well boiled, and afterwards strained and filtered. This varnish will protect the objects from damp, and is perfectly water-proof.

Varnish—For Violins, etc.

Rectified spirits of wine, $\frac{1}{2}$ gallon; add 6 ounces gum sandarac, 3 ounces gum mastic, and $\frac{1}{2}$ pint turpentine varnish; put the above in a tin can by the stove, frequently shaking till well dissolved; strain, and keep for use. If you find it harder than you wish, thin it with more turpentine-varnish.

Varnish—For Shoes.

It is a bad plan to grease the upper-leather of shoes for the purpose of keeping them soft; it rots the leather, and admits dampness more readily. It is better to make a varnish thus: Put half a pound of gum shellac broken up in small pieces, in a quart bottle or jug; cover it with alcohol; cork it tight, and put it on a shelf in a warm place; shake

it well several times a day, then add a piece of gum camphor as large as a hen's egg; shake it well, and in a few hours shake it again, and add one ounce of lampblack; if the alcohol is good, it will be dissolved in three days; then shake and use. If it gets too thick, add alcohol. Pour out two or three teaspoonfuls in a saucer, and apply it with a small paint brush. If the materials are all good, it will dry in about five minutes, and will be removed only by wearing it off, giving a gloss almost equal to patent leather. The advantage of this preparation above others is, it does not strike into the leather and make it hard, but remains on the surface, and yet excludes the water almost perfectly. This same preparation is admirable for harness, and this does not soil when touched, as lampblack preparations do.

Varnished Paint—To Clean.

If soap or soda be used the varnish will come off. Take the tea-leaves which are left in the teapot, pour some hot water on them, and let them stand for ten minutes. Then pour the tea into a basin, wash the paint with a clean flannel, and dry with a clean cloth.

Varnish—Scratches On.

Scratches on varnish may be removed by placing over them a coarse cloth well soaked in linseed oil.

Vaseline—For the Household.

As time progresses there can be no doubt that this valuable preparation will be turned to good account for many domestic uses. It has already been found an excellent anticorrosive, being an efficient protection against rust, when smeared over guns, bicycles, arms, knives, tools, and steel goods of any kind in general household use. An excellent boot and shoe paste is prepared from it, which renders boots and

shoes absolutely waterproof, and over which any ordinary blacking may be used to produce a polish.

Vaseline—In the Stable.

When mixed with graphite, vaseline affords a valuable lubricant for application to the axles of light and heavy carriages of every description and for all bearings in machinery of any kind, especially where great speed is required. A paste is also prepared from it which renders leather harness soft, pliable, impervious to wet, and free from any tendency to crack, thus increasing its durability. Another preparation is found most useful for the cure of injuries and diseases of cattle and domestic animals. This, which is supplied under the name of Veterinary Vaseline, has been found to promote the growth of the hair, unchanged in color, in the case of broken knees. Its use will also improve the condition of the coat on horses, and will keep off the flies, cure the mange, and all skin diseases commonly met with in the stable, including injuries to the frogs, hoofs, and fetlocks.

Vegetables, Transportation of— Rules for.

The first principle to be observed is the packing, and the main point in this is ventilation.

Onions and potatoes should be fully matured before shipment, for if they are not fully matured and packed dry, they will easily rot. Do not expose them long to the sun to dry, but as they become dry pack them, for the sun will burn them.

Tomatoes should be pulled just when beginning to ripen. If they are pulled too green they will rot before they will ripen, and if pulled ripe they will rot before they reach their destination.

Cucumbers, peas, and beans should be ripe, but not enough to turn yellow;

they are salable only while having a green color.

Citron melons should be shipped green—nearly matured.

Watermelons should be ripe.

Onions, tomatoes, cucumbers, peas, and beans should be shipped in bushel crates.

Potatoes should be shipped in barrels well ventilated. Bore at least three holes an inch in diameter in each stave, and several in the bottom. Cover with stout cloth covers, and cooper the barrels.

Cull the Irish and sweet potatoes well before shipment, and the culls can be shipped marked "culls." They will bring half price. If they are shipped mixed in with large potatoes they will injure the sale of them. Every one will find it advantageous to ship good quality stuff.

Watermelons and citron melons can be shipped in three bushel crates, made the same as the bushel crate, but much stronger.

Always fill the crates well, packing the articles tightly, so they cannot shake about, and they will not rot as quickly as they would if they could shake about.

Veils (Black Lace)—To Clean.

Pass them through warm water in which ox-gall has been dissolved, a tablespoonful to a quart of water, and then rinse in cold water. Stiffen by dipping in water in which a bit of gum arabic or glue has been dissolved; clap between the hands till almost dry, then pin out nicely on a frame or bed till entirely dry, and press between the folds of a sheet.

Vellum and Parchment—To Clean.

A sponge dipped in a little benzine will remove all stains without injuring the material.

Velvet, Flattened—To Restore.

When velvet gets crushed from pressure, hold the parts over a basin of hot water, with the lining of the article next the water; the pile will soon rise, and assume its original beauty.

Ventilation—Simple Means of.

A piece of wood an inch or more in thickness, three inches wide, and exactly as long as the breadth of the window through which ventilation is to be established, is to be prepared. Let the sash be now raised, and let the slip of wood be placed upon the side of the window; the sash is then to be drawn down closely upon the slip of wood. If the slip has been well fitted—and the fitting may be made more complete by adapting it to the grooves in the sash and its frame—no draught will be experienced in consequence of the displacement of the sash at this part. The effect of such an arrangement is, however to cause a separation between the bars of the sashes at the center. By this means a perpendicular current of air will be projected into the room between the glass in the upper and lower sashes and their respective bars, or else the current will pass outwards in the reverse direction, in a manner by which all inconvenience from draught will be avoided.

Supposing that two or more windows at opposite sides of a room are fitted in this manner, a very satisfactory ventilation will be secured. Owing to a difference in its equilibrium, the air will rush in on one side, and rush out on the other side of the apartment. If the slips of wood are painted of the same color as the windows themselves, they will attract little notice.

Ventilation—How to Secure Easily.

For ventilation open your windows at top and bottom. The fresh air

rushes in one way and the foul air makes its exit by the other.

Ventriloquism.

A common mistake is to suppose ventriloquism to be "throwing the voice" into some place. This is, of course, impossible. Others, misled by the derivation of the word, which comes from two Latin ones, *venter*, the belly, and *loquor*, to speak, think it means speaking from the stomach or with the muscles in that region. Now the whole art of ventriloquism consists in making sounds that shall imitate those naturally and usually proceeding from a designated place. The ventriloquist speaks without moving his lips for the purpose of deceiving the spectator, as the eye has always much to do in leading the imagination. To speak without moving the lips makes it necessary to do it with the muscles of the throat, and hence the whole mystery is thus to cultivate the ear so as to know exactly what sound would proceed from a certain locality, and then to train the throat so that you can make the sounds without moving the lips. There are many persons who are ventriloquists without knowing it, and there are many who find great difficulty in acquiring it because they imagine it an intricate or mysterious art. To become skillful of course, requires practice, and there are many sounds which cannot be imitated by voice merely, such as the singing of birds, the strident noise of a saw, the whistling of a plane, etc. Similar unmusical sounds are imitated by means of the teeth, the lips, or the soft parts of the mouth. Thus the noise of a saw is like that produced by hawking, only much prolonged, and modified by the cheeks; singing of birds may be imitated by whistling through the teeth. The foaming of soda water by breathing with open lips into a tumbler, etc.

Violet-Color for Varnish—To Make.

Violet is made indifferently with red and black, or red and blue; and to render it more splendid, with red, white, and blue. To compose violet, therefore, useful for varnish, take minium, or what is still better, vermilion, and grind it with the camphorated mastic varnish to which a fourth part of boiled oil and a little ceruse have

been added; then add a little Prussian blue ground in oil. The proportions requisite for the degree of intensity to be given to the color will soon be found by experience. The white brightens the tint. The vermilion and Prussian blue, separated or mixed, give hard tones, which must be softened by an intermediate substance that modifies, to their advantage, the reflections of the light.

W

Wages.

Wages depend theoretically on custom or competition, but the introduction of "sliding scales" and the spread of co-operative production are bringing them into lines of practical justice in the matter of division of profits. The difference in the rate of wages in different trades is due to several causes—such as (1) the pleasantness or unpleasantness of the work; (2) the ease or difficulty of learning it; (3) the constancy or inconstancy of employment; (4) the amount of responsibility, etc. For instance, mining is an "unpleasant" trade, because it is both unhealthy and dangerous; cooking is more difficult than chopping sticks; making artificial flowers is a "season" trade; running an express train and making up a medicine are tasks of great responsibility.

Wagon Hubs—To Prevent the Cracking of in Seasoning.

Take a common "try pot," such as is used by whalers, or a farmer's large boiling kettle; fit to it a wooden cover, to fasten with small screw bolts or clamps to the rim to be vapor-tight. A piece of one-inch gas pipe screwed into the cover serves to convey the vapor of the coal tar from this extemporized still to a large cask, which may be set upon one head, as a receptacle for the hubs. The still-pipe is led to the bottom of the cask, which is then

filled with hubs, and a cover fitted over all, to be vapor tight, with a small safety valve arrangement to regulate the pressure. The kettle is then filled with refuse matter from the gas works of crude coal tar, the cover secured, a fire lighted under the kettle, and shortly the lighter vapors penetrate the mass of hubs at a temperature of about two hundred to two hundred and twenty degrees Fah. The hubs are effectually and gradually heated, so that all the watery particles are expelled from the wood in steam, and replaced by the light vapors of the hydrocarbon oil. Subsequently the heavier oils are distilled over and fill the pores of the wood. The process is finished in about twelve hours, and you have a hub that will stand anywhere short of a fire. A few experiments will satisfy any one of the efficacy of this treatment. One of the products of this distillation is carbolic acid—the best known antiseptic—and the hubs will be found strongly impregnated with the peculiar smell of this well known agent.

Wagon Tires—To Keep on the Wheel.

A practical mechanic suggests a method of so putting tires on wagons that they will not get loose and require resetting. He says he ironed a wagon some years ago for his own use; and

before putting on the tires, he filled the felloes with linseed oil, and the tires have worn out and were never loose. His method is as follows: He used a long cast iron heater made for the purpose; the oil is brought to a boiling heat, the wheel is placed on a stick, so as to hang in the oil, each felloe an hour. The timber should be dry, as green timber will not take oil. Care should be taken that the oil is not made hotter than a boiling heat, or the timber will be burned. Timber filled with oil is not susceptible of injury by water, and is rendered much more durable by this process.

Wagons—To Grease.

But few people are aware that they do wagons and carriages more injury by greasing too plentifully than in almost any other way. A well made wheel will endure common wear from ten to twenty-five years, if care is taken to use the right kind and proper amount of grease; but if this matter is not attended to they will be used up in five or six years. Lard should never be used on a wagon, for it will penetrate the hub and work its way out around the tenons of the spokes, and spoil the wheel. Tallow is the best lubricator for wood axletrees, and castor oil for iron. Just enough grease should be applied to the spindle of a wagon to give it a light coating; this is better than more, for the surplus put on will work out at the ends, and be forced by the shoulder bands and nut washers into the hub around the outside of the boxes. To oil an iron axle tree, first wipe the spindle clean with a cloth wet with spirits of turpentine, and then apply a few drops of castor oil near the shoulder end. One teaspoonful is sufficient for the whole.

Weeds in Walks—To Destroy.

A most efficient agent for the destruction of weeds, and one that is not

expensive, can be made by boiling 4 pounds of arsenic and 8 pounds of soda in twelve gallons of water. To every gallon of this boiling mixture 3 gallons of cold water should be added, and the liquid carefully sprinkled over the walks while it is yet warm. It is desirable to do this in fine weather, and when the walks are dry.

Walks, Gravel—To Make.

The bottom should be laid with lime-rubbish, large flint stones, or any other hard matter, for eight or ten inches, to keep weeds from growing through, and over this the gravel is to be laid, six or eight inches thick. This should be laid rounded up in the middle, by which means the larger stones will run off to the sides, and may be raked away; for the gravel should never be screened before it is laid on. It is a common mistake to lay these walks too round, which not only makes them uneasy to walk upon, but takes off from their apparent breadth. One inch in five feet is a sufficient proportion for the rise in the middle; so that a walk twenty feet wide should be four inches higher at the middle, than at the edges, and so in proportion. As soon as the gravel is laid, it should be raked, and the large stones thrown back again; then the whole should be rolled both lengthwise and crosswise; and the person who draws the roller should wear shoes with flat heels that he may make no holes, because holes made in a new walk are not easily remedied. The walks should always be rolled three or four times after very hard showers, from which they will bind more firmly than otherwise they could ever be made to.

Walking.

To walk gracefully, the body must be erect, but not stiff, and the head held up in such a posture that the eyes are directed forward. The

tendency of untaught walkers is to look towards the ground near the feet; and some persons appear always as if admiring their shoe-laces. The eyes should not thus be cast downward, neither should the chest bend forward to throw out the back, making what are termed round shoulders; on the contrary, the body should be held erect, as if the person to whom it belongs were not afraid to look the world in the face, and the chest by all means be allowed to expand. At the same time, everything like strutting or pomposity must be carefully avoided. An easy, firm and erect posture is alone desirable. In walking, it is necessary to bear in mind that the locomotion is to be performed entirely by the legs. Awkward persons rock from side to side, helping forward each leg alternately by advancing the haunches. This is not only ungraceful but fatiguing. Let the legs alone advance, bearing up the body.

Walls—Remedies for Damp.

The following method is recommended to prevent the effect of damp walls on paper in rooms:—Line the damp part of the wall with sheet lead, rolled very thin, and fastened up with small copper nails. It may be immediately covered with paper. The lead is not to be thicker than that which is used to line tea-chests.

Another Mode of preventing the ill effects of damp in walls on wall-paper is to cover the damp part with a varnish formed of naphtha and shellac, in the proportion of $\frac{1}{4}$ lb. of the latter to a quart of the former. The smell of the mixture is unpleasant, but it wears off in a short time, and the wall is covered with a hard coating utterly impervious to damp, and to which the wall paper can be attached in the usual way.

Another.—An excellent remedy for damp walls is washing them with a strong solution of alum.

Wall-Paper—To Extract Grease Stains from.

Oil marks can be taken from the paper on drawing-room walls, and marks where people have rested their heads, by mixing pipeclay with water to the consistency of cream, laying it on the spot, and letting it remain till the following day, when it may be easily removed with a pen-knife or brush.

Washing—Hints on.

The linen for Monday's wash should be collected on Saturday, sorted and put to soak in cold water according to the various kinds. The body linen should be put into one tub, the bed and table linen in another, and fine things separately. Plain collars, cuffs, wristbands, should be strung through the button holes on a piece of tape long enough to enable the articles to be easily divided for rubbing, starching, etc. Colored muslins, prints, and flannels must be laid aside to be washed in a different manner from white cotton or linen. Properly boiled suds are far better than soap for washing, particularly if a washing machine be employed. The suds should be prepared in the following manner:—Shred into an earthenware jar best soap cut into very fine shavings, and pour boiling water to the quantity required. One pound of soap is plenty for one gallon of water. Add to this quantity half a pound of best soda, and set the jar (covered) on the stove or at the back of the kitchen range till the soap is quite dissolved. If this be done on Saturday evening, the soap will be a smooth jelly fit to use on Monday morning.

Washing Fluid—How to Prepare.

Take one pound of sal soda and half a pound of unslaked lime, put them into a gallon of water and boil twenty minutes; let it stand till cool, then drain off and put into a strong jar or jug; soak your dirty clothes over night, or until they are wet through, then wring them out and rub on plenty of soap, and in one boiler of clothes, well covered with water, put one teacupful of washing fluid; boil half an hour briskly, and then wash them thoroughly through one suds and rinse.

Washing—Chemical Preparation.

Take $\frac{1}{4}$ of a pound of soap, and $\frac{1}{4}$ of a pound of soda, and $\frac{1}{4}$ of a pound of quicklime. Cut up the soap, and dissolve it in 1 quart of boiling water; pour 1 quart of boiling water over the soda, and 3 quarts of boiling water upon the quicklime. The lime must be quick and fresh; if it is good, it will bubble up on pouring the hot water upon it. Each must be prepared in separate vessels. The lime must settle so as to leave water on the top perfectly clear; then strain it carefully (not disturbing the settlings) into the washboiler with the soda and soap; let it scald long enough to dissolve the soap; then add 6 gallons of soap water. The clothes must be put in soak over night, after rubbing soap upon the dirtiest parts of them. After having the above in readiness, wring out the clothes which have been put in soak, put them on to boil, and let each lot boil half an hour. The same water will answer for the whole washing. After boiling each lot half an hour, drain them from the boiling water, put them in a tub, and pour upon them two or three

pailfuls of clear, hot water; after this they will want but very little rubbing; then rinse through two waters, bluing the last. When dried, they will be a beautiful white. After washing the cleanest part of the white clothes, take 2 pails of the suds in which they have been washed, put it over the fire and scald, and this will wash all the flannels and colored clothes, without any extra soap. The white flannels, after being well washed in the suds, will require to be scalded by turning on a kettle of boiling water.

Waste Products — Utilization of.

Waste products, are products for which, at present, we have no use. Many of the large fortunes of today are being made by the utilization of waste products, and this will be more the case as scientific knowledge is increased. For instance, "waste silk" is now a really valuable material; rags make paper, coal dust makes briquette, slag is made into bricks, etc. Besides these obvious instances, there are innumerable others less well known, and the number is increasing daily. Thus waste-silk becomes the raw material of the spun-silk industry; and imperfect cocoons become the raw material of the artificial flower industry in Venice, Italy being now the largest producer of cocoons in the world after China. So the parings of horns and hoofs and other waste animal products make prussiate of potash.

Water—To Find.

In the early part of the year, if the grass assumes a brighter color in one particular part of a field than in the remainder, or, when the latter is ploughed, if a part be darker than the rest, it may be sus-

pected that water will be found beneath it.

In summer the gnats hover in a column, and remain always at a certain height above the ground, over the spots where springs are concealed.

In all seasons of the year, more dense vapors arise from those portions of the surface from which, owing to the existence of subterranean springs, a greater degree of humidity gives rise to more copious exhalations, especially in the morning or the evening. It is for this reason that the well-sinkers of northern Italy go in the morning to the places near which is desired to sink a well; they lie down upon the ground and look toward the sun to endeavor to discover the places in the neighborhood from which denser vapors may arise than from the rest of the field.

The springs to which these rules apply are such only as are near the surface; when the source is lower they are rarely sufficient, and the only safe guide is boring; but to execute such operations with any chance of success, a certain knowledge of elementary geology is absolutely necessary. Provided the sources do not descend to any very great depth, the principle that subterranean waters follow precisely similar laws to those upon the surface holds good; but when they are deep-seated, many disturbing causes, to be noticed hereafter, modify their action. If, in a valley formed in a diluvial or alluvial deposit lying upon a more retentive stratum, the two sides are of the same height, the water must be sought in the middle; and if, on the contrary, one side be steeper than the other, the stream would pass nearer the steeper side; in both cases supposing that the materials of the upper stratum are equally permeable through-

out, and that the depression of the lower stratum presents a tolerably regular basin-like depression. Springs are often not to be met with at the head of valleys, but they are much more frequently found to be at the intersection of the secondary valleys with the principal one; and the most favorable point for finding water is usually that which is farthest from the intersection of these valleys, and in the lower parts of the plain succeeding them, at precisely those positions where there is the least water upon the surface.

When the transverse valleys giving forth streams to a river in the bottom of a longitudinal valley are nearly at right angles to the direction of the latter, the quantity of water they yield is less than when they form an acute angle with it. This law holds equally good with subterranean as with surface waters, and it may therefore be laid down as a maxim that the most favorable point for seeking a supply by a well would be at the mouth of long transverse valleys inclined to the principal one.

If the structure of the earth consists of stone with many veins, such as red shale, water is found almost anywhere except on the tops or near the tops of hills. Boring, of course, is a perfect test, and where there is great doubt and wells may be dug very deep (judging by others in the neighborhood), this ought to be resorted to. Much can be guessed at in this way. In a neighborhood lying between a tolerably regular series of elevations, the subterranean water will probably be at a regular level. If there are any wells already in existence with a steady supply of water, you have only to ascertain how much higher or lower the surface at the selected spot is than at the well already made. If you are ten feet higher, your well must be ten

feet deeper than the one made, and vice versa. This difference in level can be ascertained with a leveling instrument, or with a shrewd man by guess.

Water—To Determine Whether it be Hard or Soft.

To ascertain whether or not water be fit for domestic purposes, to a glassful of the water add a few drops of the solution of soap in alcohol. If the water be pure, it will continue limpid; if hard, white flakes will be formed.

Water (Hard)—To Improve.

If nothing but lime is the trouble, this can be easily diminished to one-fifth or one-sixth by means of quicklime. Notwithstanding the fact that it appears paradoxical how an addition of lime can improve water having already an excess of lime, it is nevertheless true. The lime dissolved in water is always the carbonate of lime, which is the chemical name for the different kinds of so-called limestone, marble, chalk, Iceland spar, etc.; this carbonate of lime is almost insoluble in pure water. When, however, the water contains carbonic acid it dissolves large quantities of the same, as may be seen at druggists', who from fountains draw carbonic acid water (so-called soda-water) over marble counters, these counters becoming eventually almost honey-combed at their surface by its action. All that is necessary in your case is to dispose of this free carbonic acid, which is the cause of the solvent power of the water for limestone. If, now, quicklime is mixed with a small quantity of water, and left to settle until clear, a solution of lime in water will be obtained. As quicklime is soluble in the same, you must cover up your vessel, or otherwise this lime-water will attract carbonic acid from the air and become turbid. This clarified lime-water, if

poured in your hard spring-water, will at once cause its free carbonic acid to combine with the lime, and form chalk, which will precipitate with it the chalk or limestone naturally in solution in the water, as the cause of the solubility, the free carbonic acid, is removed. The quantity of lime-water to be used depends, of course, on the amount of limestone in solution in your spring-water, and has to be determined by experiment, in order to avoid an excess of lime-water. Take, for instance, a gallon of spring-water, pour in a few ounces of clear lime-water, it will become milky; let it settle, then pour in more lime-water; if it again becomes milky, it wants still more; therefore repeat the addition of lime-water till you find what quantity produces milkiness while a further addition has no effect; this is, then, the quantity needed.

Say, for instance, that you find it to be eight ounces, then you know that your water requires eight ounces of lime-water to the gallon to remove most of the dissolved limestone in the same, which will separate by settling while you draw off the clear water over it; the sediment is very fine chalk; and if obtained in sufficient quantity, may be used for whitening. It is evident that you will have to construct a cistern or reservoir to conduct this operation in. If you are able to obtain very pure quicklime, you may, to simplify operations, make a milk of lime, using, for instance, for every ton of hard spring-water to be treated, one pound of quicklime mixed with half a gallon of water. Pour it in the cistern, stir it up for a few minutes and let it settle. By the use of quicklime to purify lime-water, as much as eighty-two per cent. of the lime has been removed from hard water.

To Soften Hard Water, or purify river water, simply boil it, and then leave it

exposed to the atmosphere for some little time.

Water—To Prevent Becoming Putrid.

This is founded on the principle that iron becomes rusty only in water that contains air. It is the oxygen of the air, contained in the water, that unites with the iron and produces rust.

So, also, the rusting of iron in water removes the oxygen of the air from the water. But water in which there is no oxygen or atmospheric air cannot become putrid. To prevent water from becoming putrid, we have, therefore, only to put in it some bits of iron. Some pieces of sheet-iron (not rusty) or iron turnings are the best. Cast-iron is not so good.

The practical applications of this are numerous. Drinking water on ships may be kept sweet by putting it in sheet-iron tanks, or putting bits of iron into the water-casks. Water in which leeches are kept will remain sweet without changing it, by putting a few scraps of iron in the vessel. The offensive smell from the water in the vases of flowers will be prevented by a few small nails, or bits of sheet iron in the bottom of the vase. The putrefaction of water, so common in the bottom of rain-water cisterns, would be prevented by scraps of iron or iron-turnings. In this case, it would be well to put the iron where it would not be disturbed. Perhaps if inclosed in a loose bag or net, it would be well.

Water—To Purify When Putrid.

Water, 1 lb.; sulphuric acid, 8 drops. Mix, and filter through charcoal.

Another.—Water, 8 gallons; powdered alum, 1 ounce. Dissolve with agitation, then allow it to rest for 24 hours, decant into another vessel, and add a solution of carbonate of soda, until it ceases to produce a precipitate.

Another.—Instead of alum add seven or eight grains of red sulphate of iron, then proceed as before.

Another.—Add a little aqueous chlorine to the foul water.

Another.—Arrange a suitable pipe to the end of a pair of bellows (double bellows are best), and continue driving the atmospheric air through the water for some time, then allow it to settle for use.

Water—To Clear When Muddy.

It is a peculiar property of alum that when in solution, it will combine with the most foreign particles in suspension, or even in solution. In fact, on this property is founded the manufacture of the lakes used in painting, the dissolved coloring matter being precipitated by alum. In the same manner, all dirty coloring matter in a pailful of water may be precipitated by dissolving in it a piece of alum as small as a hickory nut, or even smaller, according to the degree of impurity of the water. Simply dissolve the alum, stir up, and let it settle. Along the Missouri and Mississippi rivers this method is frequently employed. When no excess of alum is used, this also is mostly carried down in the deposit.

Water—To Keep Cool Without Ice.

Water can be kept cool for drinking in warm weather by the following method. Get fresh water let it be kept in an unglazed earthenware pitcher, wrapped around with two or three folds of coarse cotton cloth kept constantly wet. The theory of cooling water in this manner is the absorption of heat from it by the evaporation of the moisture in the cotton cloth—expansion produces cold, compression heat.

Water Filter—Home-made.

Have an oak tub made, holding from half a barrel to a barrel, according to the amount of water needed in the

family; let it stand on end, with a faucet near the bottom; or, I prefer a hole through the bottom, near the front side, with a tube in which prevents the water from rotting the outside of the tub; then put clean pebbles 3 or 4 inches in thickness over the bottom of the tub; now have charcoal pulverized to the size of small peas (that made from hard maple is best) and put in half a bushel or so at a time; pound it down quite firmly, then put in more and pound again until the tub is filled to within eight inches of the top; and again put on two inches more of pebbles; then put a piece of clean white flannel over the whole top as a strainer.

The flannel can be washed occasionally, to remove the impurities collected from the water, and it might be well to put a flannel between the pebbles and charcoal at the bottom also. When the charcoal becomes foul, it can be renewed as before, but will work a year without renewing.

Water Filter.

Vœlcker calls attention to the use of spongy iron as a deodorizing material of greater potency than animal charcoal. Sewage water passed through a filter of spongy iron is completely purified, and this water, after having been kept six months protected from the air, was perfectly sweet and free from fungous growth. The spongy iron was obtained by calcining a finely divided iron ore and charcoal.

Water—To Prevent Encrusting the Inside of Kettles.

Water of every kind, except rain-water, will speedily cover the inside of a tea-kettle with an unpleasant crust; this may easily be guarded against by placing a clean oyster shell or piece of stone or marble in the tea-kettle. The shell or stone will always

keep the interior of the kettle in good order by attracting the particles of earth or stone.

Water Tanks.

Wooden tanks and barrels are totally unfit to keep water in; the wood continually gives organic extractive matter to the water, which in warm weather originates microscopic fungoid growth, which in its turn hastens the decay of the wood. All who have ever made a long sea-voyage on board of a vessel where water was kept in wooden barrels, will never forget the nauseous taste, lasting until the settling of the particles, or the exhaustion of the organic action producing the fungoid growth. In regard to zinc in comparison with lead, it is also poisonous; but lead is by far the worst. Workmen in zinc-white factories and painters using zinc-white are apt to get the zinc colic, which is similar to the lead colic, but more mild in its form, and yields more easily to the same remedies. Galvanized iron, being iron covered with zinc coating, is in this respect identical with zinc, and we should prefer either to lead, which, for some kinds of water—rain water, for instance—is decidedly dangerous, as it dissolves the lead easier than the zinc. The best method, however, is to employ plain iron tanks, as used on ship-board. Oxidation of the iron goes on, it is true; but this is exceedingly slow—slower than is the case with any steam-boiler: and if any iron oxide dissolves in the water, it will in any case be very little, and even if considerable, it would give the water tonic properties, as iron is healthful. It gives the red color to our blood, and is, in fact, needed in the system; therefore, we are taking it all the time in minute doses with our food. All fertile soils contain iron. Its healthful properties have caused the justly-earned reputation of chalybeate springs; and in

preserving our water in iron tanks the loss of iron by oxidation is fully compensated by the improved healthfulness of the water. Therefore, we say, away with zinc or galvanized tanks and tubes, and above all, away with lead-lined tanks and tubes, and substitute tanks of boiler iron and iron tubes; let them rust; and if they give out in 30 years or thereabout, your children may substitute new ones, and in the mean time you will prolong your own life many years, or at least spare yourself sickness and suffering.

Water Pipes—To Manage in Winter.

When the frost begins to set in, cover the water pipes with hay or straw bands, twisted tight around them. Let the cisterns and water-butts be washed out occasionally; this will keep the water pure and fresh.

Water Pipes—Ingenious Way to Mend.

A British scientific publication gives the following letter: "Many of your readers have doubtless had more or less trouble, at some period of their lives, in repairing water pipes where the water could not be shut off conveniently at the fountain head or some intermediate point. In going to my office, a few days since, my way led past a place where a man was repairing a lead pipe, which had been cut off accidentally in making an excavation. There was a pressure of water of more than fifty feet head. His plan seemed to me to be novel and ingenious. The two ends of the pipe were plugged, and then a small pile of broken ice and salt was placed around them; in five minutes the water in the pipe was frozen, the plugs removed, a short piece of pipe inserted and perfectly soldered, and in five minutes the ice in the pipes was thawed and the water flowing freely through."

Water Pipes—To Unite.

An excellent material for uniting water pipes is prepared by combining four parts of good Portland cement and one part of unslaked lime mixed together in small portions in a stout mortar, adding enough water to permit it to be reduced to a soft paste.

Watering Streets—Chemical Solution for.

For several years experiments with chemical solutions for watering streets have been employed in various English cities with considerable success. A mixed solution of common salt and chloride of lime has been used to a large extent. These salts attract moisture sufficient to keep the street dust from becoming absolutely dry unless neglected. A very small quantity is said to answer the purpose, and not only to keep the dust well laid, but also to act as an antiseptic, cleaning the streets of foul odors.

Water-Tight Cellar Floors.

When floors are not subjected to a great pressure of water, a good hydraulic cement or water lime will form a tight cellar bottom and sides; but when the whole soil is full, and the cellar is like a basin in it, the pressure of the water upward will surely find crevices where it will ooze up. The cure for this state of things is to get drainage, if possible; but if this cannot be had, and repeated patching will not stop the leaks, in a very dry time take up the top of the floor, and after covering the whole with a layer of gravel, pour into it melted asphaltum, which should be rolled and pounded down while warm, and one or two more layers applied, topping with sand. If the gravel can be hot also, it will make a much better floor; but if it cannot be, some coal tar may be mingled with the asphaltum, and the gravel coated slightly with it before the hot asphaltum is applied.

Water-Proof Paper.

The solution of oxide of copper in ammonia acts, as is well known, as an energetic solvent upon cellulose. This property is made use of to water-proof paper in the following manner: A tank is made to contain the solution just alluded to, and the paper is rapidly passed just over and in contact with the surface of the liquid, by means of properly placed rollers moving with speed. The paper, on leaving, is pressed between two cylinders, and next dried by means of so-called drying cylinders similar to those in use in paper mills. The short contact of the felty paper tissue with the liquid gives rise to just sufficient solution of cellulose to form an impermeable varnish.

Water-Proof Packing-Paper.

Water-proof packing-paper is thus made by some manufacturers: The paper is covered with a resinous liquid, then painted over with a solution of glue and soot, as without this the paper will later show blotches. After this is dried, the actual water-proof coat is applied. This is prepared with two and a half ounces of powdered shellac, dissolved in two pints of water, which is gradually brought to boil, and stirred until the substance is perfectly dissolved and softened, when gradually one-third ounce of powdered borax is added, until an intimate union of the substances takes place. The liquid is then left to cool, and while still hot any mineral color may be added, such as lampblack, yellow ochre, red ochre, iron blue, or burnt umber, whereupon it is left to get entirely cold. It is then ready for use. The operation can be so quickly performed with a brush that two women can prepare three thousand feet in ten hours.

Water-Proof—For Porous Cloth.

Dissolve $2\frac{1}{2}$ lbs. alum in 4 gallons water; dissolve also, in a separate ves-

sel, the same weight of acetate of lead in the same quantity of water. When both are well dissolved, mix the solutions together; and, when the sulphate of lead resulting from this mixture has been precipitated to the bottom of the vessel in the form of a powder, pour off the solution, and plunge into it the fabric to be rendered water-proof. Wash and rub it well during a few minutes, and hang it in the air to dry.

Water-Proof—For Tweeds.

Take two pounds, four ounces, of alum and dissolve it in ten gallons of water. In like manner dissolve the same quantity of water of lead in a similar quantity of water, and mix the two together. They form a precipitate of the sulphate of lead. The clear liquor is now withdrawn, and the cloth immersed for one hour in the solution, when it is taken out, dried in the shade, washed in clean water, and dried again. This preparation enables the cloth to repel water like the feathers of a duck's back, and yet allows the preparation to pass freely through it.

Water-Proof—Composition for Wood.

Dr. Scherzer, an Austrian official at Pekin, has sent to his government some specimens of a Chinese composition called "Schioicao," which has the property of making wood and other substances perfectly water-tight. He says that he has seen in Pekin wooden chests which had been to St. Petersburg, and had come back uninjured, and that the Chinese use the composition also for covering straw baskets, which are afterwards employed in carrying oil for long distances. Card-board, when covered with the composition, becomes as hard as wood; and most wooden buildings in Pekin have a coating of it. It consists of three parts of blood deprived of its fibrine, four of lime, and a little alum.

Wax—Sealing.

Red.—Shellac (very pale) 4 oz.; cautiously melted in a bright copper pan over a clear charcoal fire, and when fused add Venice turpentine, $1\frac{1}{4}$ oz.; mix, and further add vermilion, 3 oz.; remove the pan from the fire, cool a little, weigh it into pieces, and roll them into circular sticks on a warm marble slab by means of a polished wooden block; or it may be poured into molds while in a state of fusion. Some persons polish the sticks with a rag till quite cold.

Fine.—Shellac, 3 lbs.; Venice turpentine, 19 oz.; finest cinnabar, 2 lbs.; mix as before.

Fine.—As the last, but use just half as much vermilion.

Another.—Resin, 4 lbs.; shellac, 2 lbs.; Venice turpentine and red lead, of each, $1\frac{1}{2}$ lbs. Common.

Black.—Shellac, 60 parts; very fine ivory-black, reduced to an impalpable powder, 30 parts; Venice turpentine, 20 parts.

Fine.—As the last, but using lamp-black for ivory-black.

Fine.—Resin, 6 lbs.; shellac and Venice turpentine, of each, 2 lbs.; lamp-black q. s. Inferior.

Black Bottle-Wax.—Black resin $6\frac{3}{4}$ lbs.; beeswax, $\frac{1}{8}$ lb.; finely-powered ivory-black, 1 lb.; melt together.

Red.—As the last, but substitute Venetian or red lead for ivory-black.

French.—Shellac, (pale,) 3 lbs.; Venice turpentine, $1\frac{1}{4}$ lb.; vermilion, $3\frac{3}{4}$ lbs.; divide into sticks 12, 24, 36 or 40 to the pound. Fine.

Gold.—By stirring gold-colored mica spangles or tale, or aurum musivum into the melted resins when they begin to cool. Fine.

Marbled.—By mixing 2 or 3 different colored kinds just as they begin to grow solid.

Soft Red.—Beeswax, 8 parts; olive oil 5 parts; melt, and add Venice turpentine 15 parts; red lead to color.

Green.—As the last, but substitute powdered verdigris for red lead. Both are used for sealing certain official documents kept in tin boxes; also as a cement.

All the above forms for "fine" wax produce "superfine," by employing the best qualities of the ingredients; and "extra-superfine," or "scented," by adding 1 oz. of balsam of Peru or liquid storax to the ingredients when considerably cooled. The variegated and fancy-colored kinds are commonly scented with a little essence of musk, or ambergris, or any of the more fragrant essential oils. The addition of a little camphor or spirit of wine, makes sealing-wax burn easier. Sealing-wax adulterated with rosin, or which contains too much turpentine, runs into thin drops at the flame of a candle.

Weather Signs.

Animated bodies receive peculiar impressions that precede and announce change of weather. Thus we hear distant sounds better when there is going to be rain; we also then see remote objects more distinctly, and bad odors are more offensive than usual.

Swallows skim the ground in their flight; is it that they may feed on the worms that then come out on the surface? Lizards hide, cats make their toilet, birds oil their feathers, flies bite more sharply, chickens scratch themselves and roll in the dust, fish leap out of the water, and aquatic birds flap their wings and dabble in the ponds and brooks.

Dampness.—Nearly all the signs indicated announce dampness in the air, rather than the approach of rain, for they are not seen when a storm occurs in dry weather. Thus the swelling of wood-work, which renders it difficult to close doors made of soft timber, and the

contraction and tension of cordage made of vegetable fibres, are counted among the signs of atmospheric humidity. Rude hygrometers have even been constructed of these fibres.

Certain flowers do not open at all in rainy weather; others, the Siberian thistle particularly, remain open or shut according as the weather is going to be rainy or dry.

Pallor of the Sun announces rain; it is seen at such times only, through an atmosphere laden with vapors. If the heat be stifling, that too is a sign of rain; for one is then surrounded by an atmosphere saturated with vapor, and more readily heated, owing to its lack of transparency. If the vapors be collected in clouds, the sun's rays that pass through the latter heighten the temperature more than they would have done in perfectly clear weather. If the sun be clear and brilliant, it foretells a fine day; but when the sun is at its rising preceded by redness, and this redness passes off the moment it does appear, the sign is of rain.

Two Winds of Opposite Qualities succeeding each other often bring rain. Thus a cold wind, entering an atmosphere impregnated with moisture by the warm wind that preceded it, will bring about a precipitation of water; and the same will be the case where a damp, warm wind enters air that had been chilled by the wind that had preceded it.

Clouds.—Generally, an approaching rain can be better foreseen when the sky presents several banks or layers of clouds resting one above the other. The winds that carry with them detached masses of clouds yield but light rains.

Motionless clouds, lying in the quarter whence the wind blows, bring only a continuance of that wind; but if they appear in the opposite quarter they announce its termination.

Clouds coming up simultaneously, yet impelled by different winds, announce an early storm.

Clouds accumulating on the sides of mountains foretell rain.

Familiar Signs.—The following are the signs most familiar to navigators and farmers:

A rosy sky at sunset, fine weather. A red sky in the morning, bad weather, or a great deal of wind.

A gray sky in the morning, fine weather. If the first light of dawn appears over a bed of clouds, wind may be looked for. If on the horizon, fine weather.

Light clouds with imperfectly defined edges announce fine weather and moderate breezes. Thick clouds with well-marked edges, wind. A deep, dark blue sky of sombre tinge indicates wind. A clear and brilliant blue sky indicates fine weather. The lighter the clouds look, the less reason is there to anticipate wind. The more dense, the more rolled together, twisted, and tattered they are, the stronger the wind will be. A brilliant yellow sky at sunset announces wind; a pale yellow one, rain. According to the predominance of red, yellow, or grayish tints, we can foretell the condition of the weather with a very close approximation to accuracy.

Small clouds of an inky color portend rain. Light clouds moving rapidly in the direction opposite to dense masses, announce wind and rain.

High clouds passing before the sun, the moon, or the stars, in a direction opposite to that pursued by the lower beds of clouds, or of the wind felt at the surface of the soil, indicate a change of wind.

After Fine Weather, the first signs of a change are ordinarily high white clouds in belts, or in light dappled tufts or locks, which grow larger and soon form dense and sombre masses. Gen-

erally, the more remote and higher up these clouds appear, the less abrupt the change of weather will be, but it will be considerable.

Soft, light, delicate tints, with clouds of decided shades, indicate or accompany fine weather. Extraordinary tints and dense clouds, with hard outlines, indicate rain, and probably a gale of wind.

Notice the clouds that form on hills and other elevated places, and cling there. If they continue there, augment, or descend, they indicate rain. If they, however, ascend and disperse, they portend good weather. When sea-birds fly out away from land in the morning, there will be fine weather.

Weather Table—Dr. Adam Clark's.

The table and the accompanying remarks are the result of many years' actual observation, the whole being constructed on a due consideration of the attraction of the sun and moon, in the several positions respecting the earth, and will by a simple inspection show the observer what kind of weather will most probably follow the entrance of the moon into any of its quarters, and that so near the truth as to be seldom or never found to fail.

MOON.	TIME OF CHANGE.	IN SUMMER.
If the New Moon, the First Quarter, the Full Moon, or Last Quarter, happens	Bet. midnight and 2 in the A. M.	Fair.
	Bet. 2 and 4 A. M.	Cold, with showers.
	" 4 and 6 "	Rain.
	" 6 and 8 "	Wind and Rain.
	" 8 and 10 "	Changeable.
	" 10 and 12 "	Frequent showers.
	At 12 o'clock at noon and 2 P. M.	Very rainy.
	Bet. 2 and 4 P. M.	Changeable.
	" 4 and 6 "	Fair.
	" 6 and 8 "	Fair, if wind N.W.
	" 8 and 10 "	Rainy, if wind S.W.
	" 10 and midng't	
	" 12 and 2 A. M.	Fair.

Observations.—1. The nearer the time of the moon's change, First Quarter, Full, and Last Quarter, are to mid-

night, the fairer will the weather be during the seven days following. 2. The space for this calculation occupies from 10 at night till 2 next morning. 3. The nearer to midday or noon the phases of the moon happen, the more foul or wet weather may be expected during the next seven days. 4. The space for this calculation occupies from 10 in the forenoon to 2 in the afternoon. These observations refer principally to the summer, though they affect spring and autumn nearly in the same ratio. 5. The Moon's change, First Quarter, Full, and Last Quarter, happening during six of the afternoon hours, i. e., from 4 to 10, may be followed by fair weather; but this is mostly dependent on the wind, as noted in the table. 6. Though the weather from a variety of irregular causes, is more uncertain in the latter part of autumn, the whole winter and the beginning of spring, yet in the main, the above observations will apply to those periods also. 7. To prognosticate correctly, especially in those cases where the wind is concerned, the observer should be within sight of a good vane, where the four cardinal points of the heavens are correctly placed. With this precaution, he will scarcely ever be deceived in depending on the table.

Weather Table—Dr. Herschell's.

The following table was constructed by the celebrated Dr. Herschell, upon a philosophic consideration of the attraction of the sun and moon. It is confirmed by the experience of many years' observation, and will suggest to the observer what kind of weather will probably follow the moon's entrance into any of her quarters.

If the moon changes at 12 o'clock noon, the weather immediately afterward will be very rainy, if in summer, and there will be snow and rain in winter.

If between 2 and 4 o'clock P. M.; changeable in summer—fair and mild in winter.

Between 4 and 6 o'clock P. M.; fair in both summer and winter.

Between 6 and 10 o'clock P. M.; in summer, fair, if the wind is northwest; rainy, if south or southwest. In winter, fair and frosty, if the wind is north or northwest; rainy, if south or southwest.

Between 10 and 12 o'clock P. M.; fair in summer and frosty in winter.

Between 12 at night and 2 o'clock A. M.; fair in summer and frosty in winter, unless the wind is from the south or southwest.

Between 2 and 4 o'clock A. M.; cold and showery in the summer and snow and storm in the winter.

Between 4 and 6 o'clock A. M.; rainy both in winter and summer.

Between 6 and 8 o'clock A. M.; wind and rain in the summer and stormy in the winter.

Between 8 and 10 o'clock A. M.; changeable in summer, rain with a westerly and snow with an easterly wind in winter.

Between 10 and 12 o'clock A. M.; showery in summer, and cold and windy in winter.

Weights and Measures.

Avoirdupois Weight.

27 11-32 grs. make 1 dr.=27 11-32 grs.
16 drs " 1 oz.=437½ "
16 oz. " 1 pnd.(lb.)=7000 "
28 pounds " 1 quarter (qr.)
4 quarters " 1 hun'd w'ght(ewt).
20 ewt.(112 lbs.) " 1 ton.

This weight is used in almost all commercial transactions, and in all the common dealings of life.

Troy Weight.

4 grains make 1 carat.
6 ets.(or 24 grs.) " 1 pennyweight.
20 pennywts. " 1 ounce.
12 ounces " 1 pound.
25 pounds " 1 quarter.
100 pounds " 1 hundredweight.
20 hundrdwts. " 1 ton gld. or silvr.

By this weight the precious metals are weighed. It is also used in physical experiments, and in ascertaining the strength of spirituous liquors.

Gold plate, or any manufacture of gold, may be of any of the standards of 18, 15, 12, or 9 carats fine gold in every pound troy. Thus, when an article of gold plate or jewelry is 18 carats fine, 18 parts are of pure gold and 6 parts copper. All alloyed gold is considered as divided into 24 equal parts. The relative value of the carat of gold is 10 pennyweights.

Jewel Weight.

3.2 pearl grains make 1 carat.
151½ carats " 1 ounce.
12 ounces " 1 pound.

The weight of the carat differs in different countries: in France it is 3.18 grains, in Holland 3 grains, in Great Britain 3½ grains. Occasionally the carat is taken at 4 pearl grains, and the ounce at 150 carats.

Apothecaries' Weight.

20 grains make 1 scruple.
3 scruples make 1 dram.
8 drams make 1 ounce.
12 ounces make 1 pound.

The pound and ounce are the same as in troy weight. Medicines are compounded by this weight, but the drugs of which they are composed are bought and sold by avoirdupois.

Apothecaries' Fluid Measure.

60 minims make 1 drachm.
8 drachms " 1 ounce.
20 ounces " 1 pint.
8 pints " 1 gallon.
60 drops " 1 drachm.
4 drms. " 1 tablesp'ful.
2 ozs. " 1 wine-gls'ful.
3 ozs. " 1 teacupful.

There are 437½ grains in a fluid oz.

Lineal Measure.

12 inches make 1 foot (ft.).
3 feet " 1 yard (yd.).
5½ yards " 1 rod, perch.
4 poles, or 22 yds. make 1 chain.
40 rods make 1 furlong.
8 furlongs, or 1760 yds. " 1 mile.
3 miles " 1 league.

The length of a mile is not the same in every country. The French kilometre is equal to about five-eighths of an English mile. A Spanish and Polish mile is about $3\frac{1}{2}$ English miles. A Swedish, Danish, and Hungarian mile is from five to six English. A Russian mile, or verst, is about three-quarters of an English mile. The French metre is equal to 1.09 yard.

Geographical Measure.

60 seconds	make	1 minute.
60 minutes	"	1 degree.
30 degrees	"	1 sign.
12 signs	"	1 great circle.

Nautical Measure.

6 feet	.....make	1 fathom.
126 $\frac{2}{3}$ fathoms	"	1 cable length.
8 cable lengths	"	1 mile, or knot.
3 knots	.....	" 1 league.
20 leagues	....	" 1 degree.
360 degrees	...	" earth's circm'ce.

The knot, or nautical mile, is the same as the geographical degree, and is 795 4.8 feet longer than the statute mile. The statute knot is 6082.66 feet, the Admiralty knot is 6080 feet.

The log line (used on board ships to ascertain the distance sailed) is about 150 fathoms in length, or 900 feet long. It is usually divided into 8 equal spaces, called knots.

Liquid Measure.

4 gills	make	1 pint.
2 pints	"	1 quart.
4 quarts	"	1 gallon.
10 gals.	"	1 anker of brandy.
42 gals.	"	1 tierce.
63 "	"	1 hogsh'd.
2 hogsheads	make	1 pipe or butt.
2 pipes	"	1 tun.

A puncheon is equal to 2 tierces; a runlet is 18 gallons, and a tun of wine 20 cwt. avoirdupois.

Ale and Beer Measure.

2 pints	make	1 quart.
4 quarts	"	1 gallon.
9 gals.	"	1 firkin.
2 firks.	"	1 kilderkin.
2 kldrks.	"	1 barrel.
1 $\frac{1}{2}$ barrel	"	1 hogshhead.
2 hogshds.	"	1 butt.
144 qts.	"	1 barrel.

Practically, the only measures in use are gallons and quarts, the others are merely nominal.

Weights—Miscellaneous.

1 bbl. of flour	weighs	196 lbs.
1 bbl. of beef, pork or fish	weighs	200 lbs.
1 barrel of salt	weighs	280 lbs.
1 bu. of salt	weighs	50 lbs.
1 bushel of barley	weighs	48 lbs.
1 bu. of corn or rye	weighs	56 lbs.
1 bu. of blue grass seed	weighs	14 lbs.
1 bushel of hemp seed	weighs	44 lbs.
1 bu. of wheat, beans, clover seed, peas or potatoes	weighs	60 lbs.
1 bu. of timothy seed	weighs	45 lbs.
1 bushel of oats	weighs	32 lb
1 bu. of apples or peaches, dried,	weighs	28 lbs.
1 bu. of onions	weighs	57 lbs.

A solid foot contains 1728 solid inches.

A solid foot of water weighs 62 $\frac{1}{2}$ lbs.

A pint of water weighs approximately 1 $\frac{1}{4}$ lbs.

Welding Metals—Philosophy of.

When two pieces of metal of any kind are to be united by welding, the surfaces of conjunction must be equally heated, and both surfaces must be brought to such a temperature that the particles will form a perfect continuity between the pieces united. This embraces the entire theory of welding, soldering, or brazing metallic substances of any kind. A poor weld, or an imperfect piece of brazing or soldering may always be attributed to the lack of skill on the part of the workman. In addition, however, to the equal and adequate heating of the surfaces to be united, every particle of coal dust, cinders, or scales of oxide must be removed, so as to present two perfectly clean surfaces at the very moment when the union is to be effect-

ed. Furthermore, the piece of metal that would fuse at the lower temperature must be the guide, when bringing the surfaces of conjunction up to the proper heat. If, for example, two pieces of wrought-iron are to be welded, the part that will melt at the lower temperature must be brought just to a welding heat, and the surface of the other piece must be heated quite as hot, or a trifle hotter than the first piece. Then, if the surfaces be clean when the parts are brought together, the union will be satisfactorily complete. The degree of heat aimed at must be not to produce a fluid but simply to bring the metal into a condition between fluidity and plasticity.

When a soldering-iron, sufficiently hot to melt solder readily, is applied to a piece of solder on a sheet of clean tin, as the tin is so thin, the surface will be heated almost instantly as hot as the melted or half-fluid solder, and the resulting union will be perfect. But let the same soldering iron and some of the same solder be employed in attempting to make solder adhere to a thick piece of lead pipe, and it will be found that it will not stick until the lead has been heated as hot as the solder. It is no difficult task to make solder adhere to a steel knife-blade, by simply cleaning the surface and applying a piece of solder laid on the clean metal, provided a little resin be sprinkled over the steel to prevent oxidation. But it is not possible to make solder stick to a thick piece of steel until the soldering-iron has been applied to the surface a sufficient length of time to heat the entire bar to a proper temperature. Solder will not adhere to a cold surface; neither can one piece of iron be welded to another that has not been brought up to such a degree of temperature that the particles of metal at the surface will unite.

Wells—To Remove Foul Air from.

It is well known that many accidents occur to persons going down into wells to clean them, owing to the noxious gas in such places. To remove the gas before descent is made into any well, a quantity of burned but unslaked lime should be thrown down. This, when it comes in contact with whatever water is below, sets free a great quantity of heat in the water and lime, which rushes upward, carrying all the deleterious gas with it; after which, the descent may be made with perfect safety. The lime also absorbs carbonic acid in the well. Always lower a light before descending; if it is extinguished, there is still danger of suffocation.

Another simple method is to let an umbrella down and rapidly haul it up a number of times in succession. The effect is to remove the gas in a few minutes from a well so foul as to instantly extinguish a candle previous to the use of the umbrella.

Wheat.

It is simply a cultivated grass, and, from the nature of the plant, it is top-heavy by the time that it is ripe. In the first place, then, its roots need to be in a fairly stiff soil, and it can be easily injured by a wet wind. As a grass, however, it needs a considerable amount of moisture and abundance of sunlight; and the necessary tillage can be conducted properly only in the absence of mountains or of rocky soil. Consequently, it grows best on a warm, dry plain which has a soil stiff enough to support the plant and to retain moisture. All extremes of climate are therefore unsuitable; and within suitable latitudes the best place is a plain far enough from the sea to be dry, but with enough vegetable matter in the soil to retain mois-

ture; and among such plains the preference must be given to the one which has the richest soil and the easiest access.

Wheaten Standard of Comfort.

The standard of national comfort is gauged by the material of which the mass of the people make their bread. Nearly all Central Europe uses rye, South Europe uses maize, India uses rice or millet, Ireland substitutes potatoes, Egypt substitutes beans, and Uganda substitutes the banana. A "rice" civilization is the lowest, and a "wheat" one is the highest.

Whitewash.

A fine brilliant wash is obtained by mixing "Paris white" with glue, in the proportion of sixteen pounds to half a pound of glue. The glue should be the white, transparent kind. It should be covered with cold water at night, and in the morning carefully heated, until dissolved. The Paris white should be stirred into hot water until it is of the proper milky consistency for applying to the walls, and the dissolved glue added and thoroughly mixed. This recipe is considered one of the best, and has the merit of being inexpensive.

Another.—The following is sent out by the Light-house Board of the Treasury Department: "The following recipe for whitewashing has been found by experience to answer on wood, brick, and stone, nearly as well as oil paint, and is much cheaper: Slake half a bushel of unslaked lime with boiling water, keeping it covered during the process. Strain it and add a peck of salt, dissolved in warm water; three pounds of ground rice put in boiling water, and boiled to a thin paste; half a pound of powdered Spanish whiting, and a pound of clear glue, dissolved in warm water: mix this well together, and let the mixture

stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and when used put it on as hot as possible, with painters' or whitewash brushes."

Another.—Take a clean, water-tight cask and put into it half a bushel of lime. Slake it by pouring water over it boiling hot, and in sufficient quantity to cover it five inches deep, and stir it briskly till thoroughly slaked. When the lime has been slaked, dissolve it in water, and add two pounds of sulphate of zinc and one of common salt. These will cause the wash to harden and prevent its cracking, which gives an unseemly appearance to the work. A beautiful cream color may be given to the wash by adding three pounds of yellow ochre; or a good pearl or lead color, by the addition of lamp black. For fawn color add four pounds of umber, one pound of Indian red, and one pound of common black. For stone color add four pounds raw umber and two pounds lamp black. When applied to the outside of houses and to fences, it is rendered more durable by adding about a pint of sweet milk to a gallon of wash.

Whitewash—Stucco.

Take half a bushel of nice unslaked lime; slake it with boiling water, covering it during the process, to keep in the steam. Strain the liquor through a fine sieve or strainer, and add to it one peck of clean salt, previously dissolved in warm water, three pounds of ground rice, ground to a thin paste, and stirred and boiled hot; half a pound of powdered Spanish whiting, and one pound of clean glue, which has been previously dissolved by first soaking it well, and then hanging it over a small fire, in a small kettle within a large one filled with water. Add five gallons of hot water to the whole mixture; stir it well and let it stand a few days, covered

from dirt. It should be put on quite hot; for this purpose it can be kept in a kettle on a portable furnace. It is said that about one pint of the mixture will cover a square yard upon the outside of a house, if properly applied. Brushes more or less small may be used, according to the neatness of the job required. Coloring may be used to impart any desirable tinge to the preparation, which retains its brilliancy for a long time.

Whitewash—Improved.

The sulphate of baryta is said to possess numerous advantages over lime as a material for whitewashing walls. Four ounces of glue are soaked for twelve hours in tepid water, and then placed until it boils, in a tin vessel, with a quart of water—the vessel being placed in the water, as in the usual process of melting glue; the whole is then stirred until dissolved. Six or eight pounds of sulphate of baryta, reduced to an impalpable powder, is put into another vessel; hot water is added, and the whole is stirred until it has the appearance of milk of lime. The sizing is then added, and the whole stirred well together, and applied in the ordinary way while still warm.

Whitewashed Walls—To Paint.

If the cracks be in the plastering, and the wash be sound around the cracks, plaster of Paris is the best thing to fill them with, as it hardens quickly, does not shrink, and leaves the surface on a plane with the wall. If the plaster of Paris sets before it can be worked, wet it with vinegar. The stronger the acid, the slower it will set. If cracks be filled with putty, and the wall be painted in gloss color, the streaks of putty are very apt to be flat (no gloss), and if painted in flat color, the streaks are quite sure to have a gloss. These streaks, of course, will spoil the beauty of the work, but do not affect its dura-

bility. When filled with plaster of Paris the reversion of gloss never appears, if done as directed. If the cracks be only in the wash, the latter is loosening from the wall; and if it has not begun to scale, it soon will, and all attempts to fasten it on and paint it will be total loss. If it be loose enough to scrape off, scrape the wall, taking care not to gouge into the original wall. If not loose enough, let alone until it is. If the wash be thin, solid, and even, it can be painted to look and wear well. When the surface is lumpy, rub the lumps off with a sandstone, or a brick. After a wall has been prepared, as in either of above cases, or if a wall that has never been washed is to be painted, size it with two coats of glue size (3 ounces glue to one gallon water). Be sure the glue is all dissolved before using any of it. Let the first coat dry before the second coat is put on. When the second coat is dry, paint as follows:

Mix the first coat of paint in the proportion of 1 gallon raw linseed oil to 15 pounds white lead, ground in oil, and 1 gill of dryer. Second coat: 1 gallon raw linseed oil, 25 pounds white lead ground in oil, and $\frac{1}{2}$ gill dryer. (The lead should be the best.) Then finish either in gloss or flat color, the same as if it were wood work, with one good coat of priming on. Shade all the coats of paint, as near as you can, to the color you wish to finish in. Mix the third and fourth coats the same as the first, that is, about the same thickness for a gloss finish, and a little thinner for a flat finish.

Wife's Power.

The power of a wife for good or evil is irresistible. Home must be the seat of happiness. A good wife is to a man wisdom, and courage, and strength, and endurance. A bad wife is confusion, weakness, discomfiture, and despair. No condition is hopeless where the wife possesses firmness,

decision, and economy. There is no outward prosperity which can counteract indolence, extravagance, and folly at home. No spirit can long endure bad domestic influences. Man is strong, but his heart is not adamant. He delights in enterprise and action; but to sustain him he needs a tranquil mind, and a whole heart. He needs his moral force in the conflicts of the world. To recover his equanimity and composure, home must be to him a place of repose, of peace, of cheerfulness, of comfort; and his soul renews its strength again, and goes forth with fresh vigor to encounter the labor and troubles of life. But if at home he find no rest, and is there met with bad temper, sullenness or gloom, or is assailed by discontent or complaint, hope vanishes, and he sinks into despair.

Winds.

All regular winds on the face of the earth start at the Tropics, and blow either towards the equator or towards the nearer pole. Anything which changes the density of the atmosphere and thus makes the pressure in one place greater than in another, causes the movement of the atmosphere—which we call wind—from the area of higher pressure to that of lower pressure. The chief causes are heat and vapor, which are in excess at the equator or in deficit round the two poles. Trade-winds, therefore, start where the pressure is greatest, i. e. the tropics, and try to blow to the equator, where the heat is greatest; but the earth is spinning so much faster as they approach the equator that they get left behind, i. e. deflected to the left—the west. The anti-trade winds, blowing from the tropics towards the poles, get ahead of the earth, and are thus deflected to the right—the east.

Window Blinds—Novel.

This consists in a number of glass rods arranged either vertically or hori-

zontally, and secured together by appropriate frames, forming a series of cylindrical lenses which break up the light and throw it into every part of the room, thus producing a soft, diffused glow which is very beautiful and pleasant. The glass rods may be of any color, and by an arrangement of the colors very beautiful effects can be produced.

Windows—To Clean.

First, brush the dust off the window-frames, then take an ounce of rock ammonia and dissolve it in a pint of cold water. Pour half a tumblerful of the liquid into a basin, with the same quantity of cold water. Then the windows should be wiped over with a piece of cotton rag dipped in the ammonia water, care being taken not to touch the window-frames. Dry and polish with another rag.

Window Glass—To Prevent the Sun from Passing Through.

Pound gum tragacanth to a powder, and put it, for twenty-four hours, to dissolve in white of eggs, well beaten. Lay a coat of this on your glass with a soft brush, and let it dry.

Window Sashes,—Rattling, to Prevent.

The unwelcome music of rattling windows will often arouse and electrify nervous and timorous persons quite as effectually as if a band of burglars were making an entrance into the dwelling.

The remedy is by no means difficult or expensive. Let the sashes be taken out of the window frames, and every part of the window examined. If the jamb-casings have been sprung, or are warped and twisted, straighten the face of the casings, which may be done conveniently with a large rabbit plane and a smoothing plane.

In case the sashes should be much too narrow for the frame, let one edge be dressed off true, and a thin strip

fitted neatly and glued and nailed to the edge of one stile. See that the outside edge of such stile is not tapering, even by the thickness of a heavy shaving. When the stiles are tapering only a trifle, the sashes cannot be moved up and down easily.

Window Sashes—To Keep in Place.

These may be kept up without sash-lines and pulleys, by means of cork, in the simplest manner, and with scarcely any expense. Bore three or four holes in the sides of the sash, into which insert common bottle corks, projecting about the sixteenth part of an inch. These will press against the window-frames, along the usual groove, and by their elasticity* support the sash at any height which may be required.

Winter—Prepare for.

Buildings should be made snug, and all the windows and doors put in good condition, underpinnings banked up so as to prevent the frost penetrating, and as much of the winter supplies of food, fuel and grain put in as the purse will allow of. It is easier getting them home now than having to hurry off in a snow storm after them. Sleighs and sleds should be made ready for use before the snow comes, for they may be much needed, or needed in a hurry when they are wanted. Some one might be taken suddenly sick and die when wheels could not get through the snow drifts, while waiting to get the sleigh out of its summer quarters.

Wood—To Prevent its Cracking.

Wooden stop-cocks, and other objects of wood, are liable to crack. To prevent this lay them in a bath of fused paraffine heated to 212° Fahrenheit, and leave them as long as bubbles of air are given off. Then allow the paraffine to cool down to

its point of congelation, and remove the wood and wipe off the adhering wax. Objects treated in this way are not likely to crack. The process could be used advantageously for inlaid woods and fine furniture.

Wood—To Prevent Decay in.

To prevent the common occurrence of decay in wood, take 20 parts of resin, 46 parts of finely-powdered chalk, some hard sand, a little linseed oil and sulphuric acid; mix all together, and boil for a short time. This composition, if applied while hot, forms a kind of varnish, thereby preserving the wood.

Another process has been discovered for the prevention of the decay of wood. As the result of a five years' experience, a paint is recommended, which at the same time possesses the advantages of being impervious to water. It is composed of fifty parts of tar, five hundred parts of fine white sand, four parts of linseed oil, one part of the red oxide of copper in its native state, and, finally, one part of sulphuric acid. In order to manufacture the paint from this multiplicity of materials, the tar, sand, and oil, are first heated in an iron kettle; the oxide and acid are then added with a great deal of caution. The mass is very carefully mixed and applied while hot. When thoroughly dry, this paint is as hard as stone.

Wood—Preservation of.

The use of creosote, or sulphate of copper or iron, for preserving wood, is open to objections which unfit their employment for floorings or ornamental wood work, the first-named leaving a permanent, disagreeable smell, the latter discoloring the wood. Borax is now found to be admirably adapted for keep-

ing such from decay. The preparation is simple, and consists in immersing the wood in a saturated solution of borax, which is then heated to 212 deg. Fahr. The wood is left for ten or twelve hours, the time depending upon the density and size of the planks. When taken out, the boards are stacked until dry then re-immersed in a weaker solution of the borax for a brief time, dried again, and are then ready for use. Boards thus prepared are practically indestructible from rot, and are nearly incombustible. Another preservative is said to be a compound of one part silicate of potassa and three of pure water—the wood to remain in the solution twenty-four hours, then dried for several days, then soaked and dried a second time, and subsequently painted twice over with a mixture of one part water-cement and four of the first-mentioned mixture. Thus prepared, it will not decay in the ground, and will be incombustible out of it.

Wood—To Petrify.

Gem salt, rock alum, white vinegar, chalk and Peebles' powder, of each an equal quantity. Mix well together. If, after the ebullition is over, you throw into this any wood or porous substance, it will petrify it.

Wood—To Season.

Small pieces of non-resinous wood can be seasoned perfectly by boiling four or five hours—the process taking the sap out of the wood, which shrinks nearly one-tenth in the operation. The same writer states that trees felled in full leaf in June or July, and allowed to lie until every leaf has fallen, will then be nearly dry, as the leaves will not drop of themselves until they have drawn up and exhausted all the sap of the

tree. The time required is from a month to six weeks, according to the dryness or wetness of the weather. The floor of a mill laid with poplar so treated, and cut up and put in place in less than a month after the leaves fell, has never shown any shrinkage.

Wood—To Split.

In splitting the saw pieces it is much easier to split by slabs than to try to cleave them through the centre. This means to split off pieces at a time, but a little from the edge; and we may add, that wood splits much more readily in the direction up from the root of the tree, than when the blow of the ax is downward. In other words, to split a chunk place it upside down—contrary to the direction in which it grew—before striking at it.

Wood Pulp—To Bleach.

A process of bleaching wood pulp has been made known by M. Orioli. He has recognized that chloride of lime, however little in excess, has a tendency to produce a yellow tint; that all the strong acids turn the paste red under action of the sun, or in some time without sunlight, in the presence of moisture; that the slightest trace of iron is sufficient to blacken the paste in a very short time. These objectionable results are obviated by the following mixture: For 100 kilogrammes (220 lbs.) of wood pulp, 800 grammes of oxalic acid are employed, this serving the double purpose of bleaching the coloring matter already oxidized and of neutralizing the alkaline principles favorable to oxidation; 2 kilogrammes (4½ lbs.) of sulphate of alumina, perfectly free from iron, are added. The principal agent in this process is the oxalic acid, the energetic action of which

on vegetable matters, is well known. The sulphate of alumina added does not bleach of itself, but it forms with the coloring matter of the wood a nearly colorless lake, which heightens the brilliancy of the product.

Wood—To Dye Red.

Take chopped Brazil-wood and boil it well in water, strain it through a cloth. Then give your wood two or three coats, till it is the shade wanted. If wanted a deep red, boil the wood in water impregnated with alum and quicklime. When the last coat is dry, burnish it with the burnisher and then varnish.

Wood—To Polish.

Take a piece of punice-stone and water, and pass regularly over the work until the rising of the grain is cut down; then take powdered tripoli and boiled linseed oil, and polish the work to a bright surface.

Wood—Stone Coating for.

Forty parts of chalk; fifty of resin, and four of linseed oil, melted together; to this should be added one part of oxide of copper, and afterward one part of sulphuric acid. This last ingredient must be added carefully. The mixture, while hot, is applied with a brush.

Wood—To Render Incombustible.

Many conflagrations might be prevented, and much property saved, by rendering the wood work of houses secure against ignition. This can be done at an insignificant cost, and with little trouble. Perfect immunity is secured by saturating the wood-work with a very delicate solution of silicate of potash, as nearly neutral as possible, and when this has dried, applying one or two coats of a stronger solution. Another method is to simply impregnate the wood

with a concentrated solution of rock salt. Water-glass will act as well, but it is expensive. The salt also renders the wood proof against dry rot and the ravages of insects.

Woods, Dark—To Imitate.

The appearance of walnut may be given to white woods, by painting or sponging them with a concentrated warm solution of permanganate of potassa. The effect is different on different kinds of timber, some becoming stained very rapidly, others requiring more time for this result. The permanganate is decomposed by the woody fibre; brown peroxide of manganese is precipitated, which is afterward removed by washing with water. The wood, when dry, may be varnished, and will be found to resemble very closely the natural dark woods.

Wood—To Remove the Taste of When New.

A new keg, churn, bucket, or other wooden vessel, will generally communicate a disagreeable taste to anything that is put into it. To prevent this inconvenience, first scald the vessel well with boiling water, letting the water remain in it till cold; then dissolve some pearl ash or soda in lukewarm water, adding a little lime to it, and wash the inside of the vessel well with this solution. Afterwards scald it well with plain hot water, and rinse it with cold water before you use it.

Wood—Transferring to.

Dissolve salt in soft water; float your engraving on the surface, picture side up; let it remain about one hour. Your screen, box or table should be of bird's-eye maple, or other light colored hard wood; varnish with best copal or transfer varnish. Take the picture from the water; dry a little between linen rags; then

put the engraving, picture side down, on the varnished wood, and smooth it nicely. If the picture entirely covers the wood after the margin is cut off, so that no varnish be exposed, lay over it a thin board and heavy weight; leave it thus in press over night. If you wish but a small picture in the centre of your wood, apply the varnish only to a space the size of your picture. Dip your forefinger in salt and water, and commence with rubbing off the paper; the nearer you come to the engraving, the more careful you must be, as a hole would spoil your work.—Rub slowly and patiently till you have taken off every bit of the paper and left only the black lines and touches of your picture on the wood, in an inverted direction. Finish up with two or three coats of copal varnish.

Wood—Worm-Eaten.

Worm-eaten wood may be treated by fumigating it with benzoin, or soaking it with a solution of corrosive sublimate.

Wool on Tanned Pelts—Bleaching.

Put an old pot or other iron vessel in the bottom of a hogshead, and in the vessel a roll of brimstone. Fasten near the top a stick or two, to place the skin on. The wool must be wet, when hung on the sticks. Heat an old iron red hot, or take live coals to start the brimstone. When it is burning briskly cover the hogshead tight to keep the smoke in. In bleaching blankets, put them in, after dinner and take them out next morning. If not white enough, repeat the process.

Words—Hidden.

A riddle in which names of towns, persons, rivers, etc., are hidden or arranged, without transposition, in the midst of sentences which convey

no suggestion of their presence. In the following sentence, for instance, there are hidden six Christian names: Here is hid a name the people of Pisa acknowledge: work at each word, for there are worse things than to give the last shilling for bottled wine.—The names are Ida, Isaac, Kate, Seth, Ethel, Edwin. Great varieties of riddles, known as Buried Cities, Hidden Towns, etc., are formed on this principle, the words being sometimes placed so as to read backwards, or from right to left. The example given will, however, sufficiently explain the mode of operation.

Words—Square.

A comparatively modern sort of riddle, in which the letters of each word selected read both across and down. With four letters the making of the riddle is easy, but with five or six the difficulty increases. We give an example of each.

1.—Inside, a thought, a liquid gem, a timid creature.

2.—To run out, odor, to boil, to loosen, unseen essence.

3.—Compensations, a court favorite, to assist, to bite slightly, American money, sarcasms.

1.	2.
P I T H	I S S U E
I D E A	S C E N T
T E A R	S E E T H
H A R E	U N T I E
	E T H E R

3.

A M E N D S
M I N I O N
E N A B L E
N I B B L E
D O L L A R
S N E E R S

With seven or eight letters the riddle becomes exceedingly difficult, especially if the selected words are of like character and syllables.

Writing—To Prevent Alterations in.

If you should desire at any time to write a document in such a manner as to render attempts at altering or falsifying your manuscript impossible, bear in mind a hint given in a French paper-makers' journal, that by steeping paper in a very weak solution of gallic acid, you obtain a writing surface upon which ordinary ink makes a mark that defies deceitful erasure or alteration, by rendering any attempt at such easily detectable.

Writings—To Restore when Decayed.

Cover the letters with solution of ferrocyanide of potassium, with the addition of a diluted mineral acid; upon the application of which, the letters change very speedily to a deep blue color, of great beauty and intensity. To prevent the spreading of the color, which, by blotting the parchment, detracts greatly from the legibility, the ferrocyanide should be put on first, and the diluted acid added upon it. The method found to answer best has been to spread the ferrocyanide thin with a feather or a bit of stick cut to a blunt point. Though the ferrocyanide should occasion no sensible change of color, yet the moment the acid comes upon it, every trace of a letter turns at once to a blue line, which soon acquires its full intensity, and is beyond comparison stronger than the color of the original trace. If, then, the corner of a bit of blotting-paper be carefully and dexterously applied near the letters, so as to imbibe the superfluous liquor, the staining of the parchment may be in great measure avoided; for it is this superfluous liquor which, absorbing part of the coloring matters from the let-

ters, becomes a dye to whatever it touches. Care must be taken not to bring the blotting-paper in contact with the letters, because the coloring matter is soft while wet, and may easily be rubbed off. The acid chiefly employed is the muriatic; but both the sulphuric and nitric succeed very well. They should be so far diluted as not to be liable to corrode the parchment, after which the degree of strength does not seem to be a matter of much nicety.

Writing—Some Common Errors to be Avoided.

Acknowledgment, not acknowledgement.

Afraid, not affraid.

Agreeable, not agreable.

Allege, not alledge.

Always, not allways.

Ambidextrous, not ambidexterous.

An is incorrectly used before words beginning with h, when it is distinctly aspirated, as in hall, harangue, hero, heroic, history, historical, historian, house, hypothesis, heraldic, etc. It is correctly used before words in which the initial h is silent, as in heir, herb, honest, honor, hostler, hour. It is not correct before words beginning with eu, as in European, and u, as in union—a house, a history, a useful thing; an heir, an honest man.

Ante before, is to be distinguished from anti = against. Thus: antediluvian, antecedent; antichrist, antipodes, antidote.

Apostasy, not apostacy.

Arctic, not artic.

Auxiliary, only one l.

Ay, meaning yes.

Aye, meaning always, for ever.

Balance, only one l.

Battalion, two t's and one l.

Belief, not beleif.

Best and Better should be thus

used: "This is the best of the three";
 "This is the better of the two."

Blamable, not blameable; but
 blameful, blameworthy.

Blissful, only one l.

Breech, of a gun; Breach, in a
 wall.

Brief, not breif.

Britannia, only one t.

Ceiling, not cieling.

Chargeable, not chargable.

Chief, not cheif.

Conceit, not conciet.

Controvert, not ~~contra~~vert.

Door-jamb, not jam.

Dose, a prescribed quantity of
 medicine.

Doze, a light slumber.

E'er, contraction of ever.

Envelop, to wrap around.

Envelope, cover of letter.

Ere, meaning before.

Faithful, one l.

Farewell, two l's; but only one in
 welfare.

Farther, not further (though often
 used).

Field, not feild.

Fiend, not feind.

Fulfil, but—fulfilling.

Handfuls, not handsful.

Illegible, not illedgable.

Inclosure, preferable to enclosure.

Inquire, not enquire.

Inseparable, not inseperable.

Irrelevant, often mispronounced
 irrevelant.

Longwise, not longways.

Lest, in case; not least.

Misspell, not mispel.

Mistakable, not mistakeable.

Mouldy, not moldy.

Negotiate, not negotiate.

Neither and nor; is and are; was
 and were; "Neither man or woman
 are capable of perfection in this
 world" should be "Neither m^an nor
 woman is capable" and so forth.
 "Neither John nor James were at the
 concert" should be "Neither John nor

James was at the concert." Sir
 Walter Scott, in his hurriedly-written
 Waverley Novels, often errs in this
 respect. For example, in the second
 chapter of "The Abbot," near the
 end, Henry Warden is represented
 as saying: "Neither husband nor wife,
 neither son nor daughter, neither
 friend nor relation, *are* lawfully to be
 made the *objects* of our idolatry."
 The words here printed in italic
 should be, of course, *is* and *object*.

Niece, not neice.

Nightfall, two l's.

Nowise, not noways.

Only, this word is seldom in its
 proper place, both in writing and
 speaking. Thus: "He only walked a
 mile" should be "He walked only
 a mile"; "only walked" might mean
 that he did not run or ride. "Mr.
 Blank only spoke a few words" should
 be "spoke only".

Pailfuls, not pailsful.

Parallel is often misspelled paralell.

Precedent, an authorized example;
 and president, the head of a state,
 society, etc., are frequently con-
 founded.

Privilege, not privileged.

Prophecy, a prediction, a foretelling
 of an event; and prophesy, to predict,
 or foretell an event.

Quarrel, not quarell, or quarrell.

Raze, to level a wall or building
 with the ground, has the opposite
 meaning of raise, to elevate, or lift up.

Recall, not recal.

Reins, for guiding horses, must
 not be written rains.

Relevant, is often mispronounced
 revelant.

Repel, not repell.

Reprieve, not repreive.

Retrieve, not retreive.

Roomful, one l.

Rotary, not rotatory.

Seize, not sieze.

Separate, not seperate.

Shield, not sheild.

Shriek, not shreik.
Shrivel, not shrivell.
Siege, not seige.
Sieve, not seive.
Smallness, not smalness.
Spoonfuls, not spoonsful.
Subtraction, not substraction.
Tallness, not talness.

Writing—To Make Indelible.

The following simple process will make lead-pencil writing or drawing as indelible as if done with ink. Lay the writing in a shallow dish, and pour skimmed milk upon it. Any spots not wet at first may have the milk placed upon them lightly with a feather. When the paper is wet all over with the milk take it up and let the milk drain off, and whip off with the feather the drops which collect on the lower edge. Dry it carefully, and it will be found to be perfectly indelible. It cannot be removed even with India rubber. It is an old and a good recipe.

Write (How to)—Business Letters.

Use the fewest words which will clearly convey your meaning; superfluous words waste time and are apt to confuse.

Write plainly. Elegant writing is often unreadable, and it is better to write legibly even if you think plain letters not so handsome. Be particular to make all proper names and figures especially plain. Flourishes are out of place in a business letter.

When ordering goods state carefully what you want and the amount you enclose.

In replying to a letter it is well to begin by stating in brief the substance of that letter's contents, so your correspondent will see that you have got his meaning, as well as to refresh his memory about the matter you are writing on.

Always sign your name and address in full to each letter you write, even though you have written to the same person before. Be careful to give postoffice, county and state, very plainly, as different names are often very similar. It is well to spell the name of your state in full.

Always read your letter over before enclosing in the envelope, to make sure you have not forgotten anything. If money is to be enclosed, be sure it is. Seal securely and direct plainly.

It is well to make a little memorandum, at the time of writing, of what you have written, time, etc. This is handy to refer to in case of mistake. Or take a carbon copy.

If a dealer does not in due time respond to an order intrusted to him, in justice to yourself and him you should write for an explanation. State when you wrote to him, what you wrote for, amount enclosed, if any, how you directed the goods to be sent, and any other information you think important. If you do not remember the exact date, give the nearest guess you can to it. If you merely write,—“I sent you an order some time ago, and you haven't filled it,” it is almost impossible to investigate the matter in an establishment of any size. It is unnecessary to call people swindlers, when you write to them, even if you think so. If they are honest, they will not be inclined to do more than they are bound to; if dishonest, they expect that kind of thing, and take it as a matter of course. When you know a person to be a cheat, don't waste your time and postage, telling him you will expose him, but go to work and do it.

Writing (New)—To Make Look Old.

Take 1 dr. of saffron, and infuse it in $\frac{1}{2}$ pt. of ink, and warm it over a

gentle fire, and it will cause whatever is written with it to turn yellow, and appear as if of many years' standing.

Writing (Old)—To Copy.

Press copies of old letters or manuscript can be taken, it is said, by pressing the pages on the dampened paper in the usual way, and then applying the vapor of ammonia. Although no result may appear to follow the first operation, we are assured that after the second the letters will appear distinctly on the dampened blotting-paper. Another method consists in dampening the manuscript with a solution of sugar, honey, or mucilaginous matter, and then applying as heretofore. In this case the sugar is put on the paper, instead of being mixed previously in the ink, as is done in one form or other with ordinary copying inks.

Carre's Method.—This is accomplished by wetting unsized copying paper with a solution of one part of hydrochloric or muriatic acid and twelve of water, instead of plain water; and, after laying this on the manuscript, subjecting the whole to pressure with the ordinary copying press. This method has also lately been used to test the antiquity of certain writing, since, when the manuscript is thirty years old, only an illegible copy can be made. On the other hand, writing less than ten years old disappears entirely after immersion of some hours or days in the same solution, while that thirty years old and more continues legible after fifteen days' maceration. In taking a press copy of writing by Carre's method any acid absorbed by the paper can be neutralized by exposing it for a few seconds above a dish containing aqua ammonia.

Writing—For the Press.

Do not say, "I write in a hurry, please correct all mistakes." You

have ten times the opportunity to do this that the editor has. His time is worth from fifty cents to ten dollars an hour, and he will be likely to correct your errors by fire, and then they will never trouble any one any more. You must do your own work if you want it done. It is said that Newton wrote his chronology over fifteen times before he was satisfied with it, and Gibbon wrote out his memoir nine times before sending it to the press. No beginners can expect better success or less labor than such learned men.

Do not Write Poetry. Most who try, do not know what poetry is, and they cannot be told till they have learned a great deal more than they know now. Ninety-nine one-hundredths of the rhyme written is good for three things: 1. To give to friends who prize it for the giver's sake. 2. It makes passable kindlings. 3. It will bring about three cents a pound at the paper mill, to work up with old rags. Write prose;—poetic prose is far better than prosaic poetry.

Do not write long articles, or long sentences. Write as you would a telegram, where each word costs a dime, or an advertisement, which costs a dollar a line.

Do not ask an editor to return your manuscript. Keep a copy. With a hundred letters a day to read, he has something to do besides hunting up last year's manuscripts, received, rejected, and buried or burned long ago.

Do not get angry because your first article is rejected. Quite likely if it is printed, you will live to wish it had been burned, or sent to the paper mill. The first pair of shoes a cobbler makes are not likely to sell very readily; and it takes more skill and longer practice to write good articles than to make good shoes.

Keep Trying and Sending on; the practice will do you good; and if writing is in you it will come out. But if you cannot stand criticism, and rejection, and fault-finding, you will make a poor author, and may as well know it at once. The writer's first article was rejected; he kept it awhile, sent it to the same paper again, and it was printed.

Remember an editor may have a peck of better articles than yours is, which he wrote himself, and yet does not think them worth publishing. He will do the best he can, consistently, by you. He is more anxious to encourage good writers than you are to write.

Do not expect the poor editor to set up a reading school, spelling school, grammar school and writing school for the benefit of those who have not improved their opportunities at home. You can study these matters anywhere; do not impose your ignorance on an editor, and then wonder that he has not time to fool over such nonsense. Some poor printer has to set up the type for your article. Every cent you save by using pale ink, poor paper, and writing carelessly because you are in a hurry, or writing finely, or crosswise, to save three cents postage, will cost the printer in toil, delay, and eyesight, at least fifty times as much money as you will save, besides causing him to commit blunders for you to scold about. Do you wonder such articles are rejected?

Do not get angry.—Do not write slang, or personalities, or abuse, or slander.

Finally.—Write with black ink, on white paper, wide ruled.

Make the pages small, one-fourth that of a foolscap sheet.

Leave the second page of each leaf blank.

Give to the written page an ample margin all around.

Number the pages in the order of their succession.

Write in a plain bold hand, with less respect to beauty.

Use no abbreviations which are not to appear in print.

Punctuate the manuscript as it should be printed.

For italics underscore one line; for small capitals, two; capitals, three.

Never interline without the caret to show its place.

Take special pains with every letter in proper names.

Review every word, to be sure that none is illegible.

Put directions to the printer, at the head of the first page.

Never write a private letter to the editor on the printer's copy, but always on a separate sheet.

A well-punctuated, typewritten manuscript will receive more consideration than any other kind.

Writing—To Take Out.

Wash by means of camel's-hair pencils dipped alternately in solutions of cyanide of potassium and oxalic acid.

Y

Young—Counsel for the.

Never be cast down by trifles. If a spider break his thread twenty times, he will mend it again as often.

Make up your mind to do a thing, and you will do it.

Fear not if a trouble comes upon you; keep up your spirits, though the day

be a dark one. If the sun is going down, look up to the stars. If the earth is dark, keep your eye on heaven. With God's promises, a man or a child may be cheerful.

Mind what you run after. Never be content with a bubble that will burst—firewood, that will end in smoke and darkness. Get that which you can keep, and which is worth keeping.

Fight hard against a hasty temper. Anger will come, but resist it strongly. A fit of passion may give you cause to mourn all the days of your life.

Never revenge an injury. If you have an enemy, act kindly to him, and make him your friend. You may not win him over at once, but try again. Let one kindness be followed by another, till you have compassed your end. By little and little, great things are completed; and repeated kindness will soften the heart of stone.

Whatever you do, do it willingly. A boy that is whipped to school never learns his lessons well. A man who is compelled to work cares not how badly it is performed. He that pulls off his coat cheerfully, turns up his sleeves in earnest, and sings while he works, is the man of action.

Young Men—A Dozen Good Rules for the Guidance of.

Most of our successful men began life without a dollar. They have won success by hard work and strict honesty. You can do the same. Here are a

dozen rules for getting on in the world. Read them often.

Be honest. Dishonesty seldom makes one rich, and when it does, riches are as a curse. There is no such thing as dishonest success.

Work. The world is not going to pay for nothing. Ninety per cent. of what men call genius is only a talent for hard work.

Enter into that business or trade you like best, and for which nature seems to have fitted you, provided it is honorable.

Be independent. Do not lean on others to do your thinking or to conquer difficulties.

Be conscientious in the discharge of every duty. Do your work thoroughly. No one can rise who slights his work.

Don't try to begin on top. Begin at the bottom and you will be surer of reaching the top, some time.

Trust to nothing but God and hard work. Inscribe on your banner: "Luck is a fool; pluck is a hero."

Be punctual. Keep your appointment. Be there a minute before time if you have to lose a dinner to do it.

Be polite. Every smile, every gentle bow is money in your pocket.

Be generous. Meanness makes enemies and breeds distrust.

Spend less than you earn. Do not run in debt. Watch the little leaks and you can live on your salary.

Make all the money you can, honestly; do all the good you can with it while you live; be your own executor.

Z

Zinc.

Zinc was originally used for little else than making brass (an alloy of copper and zinc), and though the ore was used with copper by the Romans under the form of calamine, the metal was not differentiated till the time of Paracelsus. Early in the present cen-

tury it was discovered that zinc could be made quite fit for manipulation by machinery, simply by being heated to a temperature of about 300 degrees Fahrenheit; and since then the metal has been used alone, as well as in alloys, for all sorts of purposes—roofing, baths, statuettes of "imitation bronze,"

etc.; but its use in all these connections is mainly as a "cover" for iron—i. e., galvanizing.

Zinc—Painting.

A difficulty is often experienced in causing oil colors to adhere to sheet zinc. Boettger recommends the employment of a mordant, so to speak, of the following composition: One part of chloride of copper, one of nitrate of copper, and one of sal ammoniac, are to be dissolved in sixty-four parts of water, to which solution is to be added one part of commercial hydrochloric acid. The sheets of zinc are to be brushed over with this liquid,

which gives them a deep black color; in the course of from twelve to twenty-four hours they become dry, and to their now dirty-gray surface a coat of any oil color will firmly adhere. Some sheets of zinc prepared in this way, and afterward painted, have been found to entirely withstand all the atmospheric changes of winter and summer.

Zinc Whitewash.

Mix oxide of zinc with common size, and apply it with a whitewash brush to the ceiling. After this, apply in the same manner a wash of the chloride of zinc, which will combine with the oxide to form a smooth cement with a shining surface.

COOKING DEPARTMENT.

SOUPS.

Soup—Stock for.

Four pounds of shin-bone, and one pound of lean neck of beef, 4 carrots, 1 turnip, 1 stick of celery, 2 parsnips, 2 leeks, 1 onion, 6 cloves, 6 peppers, a bunch of sweet herbs, 1 gallon of water. Cut the meat into slices, crack the bone and put it into an earthen pipkin that will stand the fire, as this makes far better soup than a metal saucepan; add the water, and let it stew slowly till the scum rises, and skim it clear; stick the cloves into the onion and then add the vegetables, and let the whole stew slowly till the meat is in rags, which will be in about eight hours. It must simmer very slowly, for if it boils the meat will not yield the gravy so well, and the stock will be thick in place of being clear. After it is cold, it should be strained through a colander, and kept in a covered pan or jar for use.

Soup—Mixed Stock.

Put the bones and tough pieces left from roasts and broils, also cuttings from fresh meats, into a kettle with one quart of water to every two pounds of meat and bone. Let it come to a boil and skim; then let it simmer for six hours, then add an onion and three whole cloves; cook for two hours longer. In the morning skim off the fat. This makes a good common soup, and a good foundation for a vegetable soup.

Soups—Stock for Clear.

Cover beef with plenty of cold water. Let it come to a boil slowly; skim, and let it simmer for eight hours; strain and set away to cool. In the morning skim off the fat, put it into a kettle; don't let any sediment get in. Put into it one onion, one stalk of celery and three whole cloves. Boil for ten or twenty minutes longer. Season with salt, and pepper to taste. Strain through an old napkin. This can be used for a clear soup, or as a foundation for all kinds of clear soups.

Soups and Sauces—White Stock for.

To three pounds of uncooked meat and bones, such as knuckle of veal, scraps and bones of the same, bones and giblets of poultry, allow three quarts of cold water, or what is better, the water in which any fresh meat has been boiled, one small carrot, the same of parsnip, both cut in slices, a few short pieces of celery, two onions sliced, a few sprigs of parsley, two bay leaves, and one teaspoonful of whole white pepper. If knuckle of veal is used, cut the meat in pieces from the bones, put the bones in the bottom of the stock pot, then the meat and other ingredients; add a little salt, put it on the stove, and as it comes slowly to the boil, skim it carefully. Let it boil steadily and slowly

for about three hours, then strain it through a fine sieve and let it stand in a cool place for twelve hours; the fat should then be taken clean off, the stock put on in a pan, allowed to come to a boil, carefully skimmed, then poured into a basin and put aside for use.

Soup—Coloring for.

As soups often require coloring, it is well to prepare browning for that purpose. Two baked onions, well browned in the oven and then chopped fine, make an excellent coloring and flavoring. The shells of green peas, dried in the oven until they are brown, but not black, will also answer to brown soup, and will keep all winter if hung in a perfectly dry place.

Soups—Fried Bread for.

Cut stale bread into dice, and fry in boiling fat until brown. It will take about half a minute. The fat must be smoking in the center when the bread is put in.

Soup—Asparagus.

Boil one quart of finely cut asparagus tender in one quart of water. Rub all through a colander. Heat one pint of milk; warm and rub together one tablespoonful of butter with two of flour, adding the hot milk gradually. Season and pour into asparagus. Bring to boiling point, pour into tureen with a cupful of toasted bits of bread.

Soup—Cream of Barley.

Wash in cold water four ounces of pearl barley, put it on in a pan with one pint of water, and let it simmer until it has absorbed the water, then add two quarts of good white stock, and let it boil gently for four hours; strain the soup into a basin, bruise the barley in a mortar, then press it through a wire sieve into the soup, return to the pan, and let it boil for about ten minutes, carefully removing the scum as it rises to the surface. Before serv-

ing add one gill of good cream, and half a pint of peas boiled green; if more seasoning is required, put a little white pepper and salt.

Soup—Beef Broth.

Wash a leg or shin of beef; crack the bone well (ask the butcher to do it for you); add any trimmings of meat, game, or poultry, heads, necks, gibbards, feet, etc.; cover them with cold water; stir it up well from the bottom, and the moment it begins to simmer, skim it carefully. Your broth must be perfectly clear and limpid, for on this depends the goodness of the soups, sauces and gravies of which it is the basis. Add some cold water to make the remaining scum rise, and skim it again. When the scum has done rising and the surface of the broth is quite clear put in one moderate sized carrot, a head of celery, two turnips, and two onions; it should not have any taste of sweet herbs, spice, or garlic, etc., but any of these flavors can easily be added afterward if desired; cover it close, set it by the side of the fire, and let it simmer very gently (so as not to waste the broth) for four or five hours more, according to the weight of the meat; strain it through a sieve into a clean and dry stone pan, and set it into the coldest place you have, if for after use.

Soup—Beef Tea.

Take one pound of beef, or more if required, remove the skin and fat, and cut it in very small bits, put it into a jelly jar that will hold it easily, sprinkle a little salt over it, and tie a piece of cloth over the jar; put it into a close stew-pan in cold water about two inches deep, and let it simmer for six hours, adding a little boiling water occasionally and taking care not to allow it to boil into the jar. When ready, pour through a gravy strainer. Of course this method yields a very small quantity, but it is often given,

in teaspoonfuls only, to very weak persons.

Another.—Put on, in one pint of cold water, one small carrot sliced, one onion cut in two, and one small piece of celery; let it simmer for forty minutes, add two sprigs of parsley, and allow it to simmer twenty minutes longer, then strain and set aside till quite cold. Proceed now exactly as in the foregoing recipe, using this pint of water with the flavor of the vegetables in it instead of the simple cold water.

Another.—Take one pound of fresh beef from the juicy side of the round, pare away the skin and fat, mince it finely, and put it into a basin with one pint of cold water. Have a basin with a projecting rim, and a saucepan just the size to allow said rim to rest on the edge of it; put the meat and water into the basin, then put the basin into the pan about one-third full of boiling water, put the cover of the pan on the basin, and let it cook for three hours, never for one moment allowing the contents of the basin to boil, while the water outside must be kept boiling slowly. Should the water dry up, more boiling water must be added. When ready, pour through a gravy strainer, and salt to taste.

Soup—Beef and Barley.

Use two quarts of stock. Soak about six teaspoonfuls of barley for two hours, boil about half an hour in salted water. After the piece of cold fat has been taken from the top of the soup, put in the barley and let simmer for a half hour. Now stir in two tablespoonfuls of shredded gelatine, previously soaked in cold water for an hour. When this has dissolved, soup is ready for use.

Soup—Prof. Boyd's.

Take the shank of beef, or pieces of beef or veal left from a roasting piece, and boil in water sufficient for the soup;

if the meat has not been previously cooked, it must be boiled four or five hours, or till it will separate from the bone easily. Pare potatoes, three or four good sized onions, part of a yellow turnip, and two or three carrots, if desired; slice, not very thin, and boil in the soup after seasoning with salt and pepper to the taste. Boil the turnips about one and a half hours; the other vegetables will cook sooner.

Soup—Puree of Brussels Sprouts.

Put on one pound of Brussels sprouts in boiling water with a little soda, let them boil with the cover off the pan till tender, then drain them and pass through a wire sieve with a wooden spoon. Put this puree into a clean pan with three pints of boiling white stock, add a small teacupful of good cream, season with a little white pepper and salt; let it get quite hot, but do not allow it to boil. Serve with fried breads. Observe that great care must be taken not to let this soup boil, as by doing so it will lose the color, and be unfit to send to table.

Soup—Cabbage.

Cook one pint of chopped cabbage in three pints of water for half an hour. Skim out most of the cabbage, leaving about a small cupful. Then add a cupful of cream or milk. Season with butter, pepper and salt to taste.

Soup—Calf's-foot Broth.

Boil two feet in 3 quarts of water to half; strain and set it by for use. When required, take off the fat, put a large teacupful of the jelly into the saucepan with $\frac{3}{4}$ of a glass of white wine, a little sugar and nutmeg; heat it up till nearly boiling; then with a little of it beat up the yolk of an egg, add a bit of butter, and stir all together without allowing it to boil. A little fresh lemon peel may be grated into it.

Soup—Celery.

Put on in an enameled pan one quart of good white stock, with four ordinary sized onions, peeled and cut into small dice, the white part of two heads of celery, washed and cut into pieces about an inch long, and a good tablespoonful of ham liquor; let it boil gently for about an hour, or till the celery is quite tender, then pass through a wire sieve, and return to the pan. Dissolve one tablespoonful of corn flour in a very little cold water or milk, stir into the soup and let it boil for eight minutes, removing the scum as it rises; season with a little celery salt and white pepper, and just before serving add one gill of cream; let it get as hot as possible without boiling, and serve with croutons of bread on a separate dish.

Soup—Chantilly.

Put on in boiling water two pints of fresh green peas, a small carrot cut up, one onion sliced, a small bunch of parsley, a little mint, and half a teaspoonful of sugar. Let them boil, with the cover off the pan, till tender, then take out the carrot and onion; drain the peas, and pass through a wire sieve. Moisten one dessertspoonful of corn flour with a little stock, and boil it in two pints and a half of seasoned white stock. Stir the puree of green peas into the boiling stock, but on no account allow it to boil after the puree is added.

Soup—Chicken Broth.

Cut a chicken into small pieces, and remove the skin and any fat that is visible; boil it for twenty minutes in about a quart of water, with a blade of mace, a slice of onion, and ten corns of white pepper. Simmer slowly till the flavor is good. Beat one-fourth of an ounce of sweet almonds with a little water; add it to the broth, strain it, and when cold take off the fat.

Soup, Chicken—For Invalids.

Have a nice young fowl or chicken drawn and carefully cleaned. Put it on in a clean pan, with one teacupful of whole rice, and as much cold water as will cover it; let it come slowly to the boil, skimming it carefully; keep it boiling gently for about two hours, and just before taking it off add a little salt.

Soup—Clam Chowder.

One quart of clams, one pint of thin-sliced potatoes, one pint of oyster crackers, two onions sliced very thin, one cupful of canned tomatoes, good sized piece of butter, salt and pepper to taste. Cover the vegetables with about two quarts of water. Cook until done; then add the clams and cook about fifteen minutes longer. When ready to serve add the crackers rolled fine.

Soup, Clear—With Croutons.

For two quarts, stamp out from slices of stale bread, about a quarter of an inch thick, four dozen rounds the size of a shilling; brown them in the oven; put them in the tureen, and pour the boiling soup over them.

Soup—Corn.

One pint of grated green corn, one quart of milk, one pint of hot water, one heaping tablespoonful of flour, two heaping tablespoonfuls of butter, one slice of onion, salt and pepper to taste. Cook the corn in water for thirty minutes. Let the milk and onion come to a boil. Mix the flour and butter together, and add a little of the boiling milk to it. When smooth stir into the milk and cook for ten minutes. Take out the onion and add the corn. Cook for five minutes longer. Season to taste.

Soup—Fish Chowder.

Haddock and striped bass are generally considered the best fish for chowder. Cut the fish in pieces about one inch thick and two inches square. Cut

five or six good slices of the best salt pork, lay them in the bottom of an iron pot and fry till crisped, but do not scorch; take out the pork, leaving the fat, and chop the pork in small pieces; put into the pot a layer of fish, a layer of split crackers and some of the chopped pork; a little red and black pepper; a little chopped onion; then another layer of split crackers, fish and seasoning, and so on till all the fish is used. Then just cover all with water, and stew slowly till all is tender. Thicken the gravy with cracker crumbs and catsup if you like; take out the fish, boil up the gravy once, squeeze in the juice of a lemon, and pour the gravy over the fish. Add salt if necessary.

Soup—Broth of Fragments.

When you prepare a large dinner, you may make good broth, or palatable soup, at a very small cost, by taking care of all the trimmings and parings of the meat, game and poultry you are going to use; wash them well and put them in a stewpan on a hot fire; when it boils, take off all the scum, and set it on again to simmer gently; put in 2 carrots, 2 turnips, a large onion, 2 blades of pounded mace, and 1 head of celery; some mushroom parings will be an addition. Let it continue to simmer gently for four or five hours, and then strain it through a sieve into a clean basin. This saves much expense in buying gravy-meat.

Soup—Water Gruel.

Take of the coarse part of corn meal. two handfuls; water, three quarts; boil it till only two quarts remain, then strain off the liquor, and season it to the palate with salt, sugar and nutmeg, to which may be added a spoonful or two of wine.

Another.—Take of oatmeal two large spoonfuls, water, one quart. Mix them well and boil them about ten or fifteen minutes, stirring often; then strain the gruel through a sieve,

and add sugar and salt enough to make it agreeable to the taste. When it is designed as a meal, dissolve in it a little butter, and then add bread and nutmeg, as occasion requires.

Soup—Gumbo.

Fry a light brown, 2 pounds of the round of beef with 4 sliced onions; put into the soup pot with 4 quarts of water, $\frac{1}{2}$ a can of tomatoes or 12 fresh ones, 1 teacupful of sliced okra and 1 green pepper; boil slowly 5 hours and put through the colander. Throw into the tureen some sippets of fried bread, and serve at once.

Soup—Hotch-potch, a Favorite Scotch Soup.

Boil a good sized neck or breast of lamb for $\frac{1}{2}$ an hour; take out of the soup pot 6 of the best chops, and lay them aside; then boil the rest to a good stock. Wash and cut into small pieces 4 freshly pulled young turnips, 4 young carrots, 12 young onions, a good-sized lettuce, and a small bunch of parsley; boil all these in the stock one hour. Twenty minutes before the soup is required, cut up a fresh cauliflower and put it in, together with a quart of green peas, a pint of young beans, and a little pepper and salt; heat the chops that have been laid aside, and pour the soup over them in the tureen. A sprig of mint is an improvement.

Soup—Julienne.

Cut into small pieces one inch long, four ounces of the red part of carrots, the same quantity of turnips, the white of one small head of celery, two ounces of onions, and four of the white part of leeks. Cook each of these vegetables separately in boiling water with a little salt and sugar in it, drain and put them in the tureen. Cut into shreds one inch long some cabbage lettuce, boil gently for a few minutes with a very little carbonate of soda in the water,

drain, add to the other vegetables, and pour over them three quarts of boiling clear soup.

Soup—Julienne (Maigre).

Put in a pan a quart and a half of cold water with half a pound of dried green peas. Boil this slowly for three hours, then add one small carrot, two stalks of celery, one small Spanish onion half of a small turnip, one teaspoonful of salt, and half a teaspoonful of sugar. Boil all slowly for one hour longer, then strain the stock through a fine sieve, and set it aside till the next day. Cut into straws about an inch long, a small carrot, a slice of turnip, and a stalk of celery, and boil them till tender in fast boiling water with a little salt and sugar in it. Cut half a dozen Brussels sprouts also in strips, and cook them separately in boiling water with a little salt and a pinch of soda in it. Strain these vegetables and pour over them the stock heated to boiling point. Care must be taken to keep back the sediment.

Soup—White Macaroni.

Put on four ounces of the best macaroni in one quart of boiling water, let it boil gently for three-quarters of an hour, then drain and cut in half inch lengths. Put it on again in a quart of white stock, let it simmer gently for twenty minutes, then draw to the side of the fire for five minutes. Have the yolks of two eggs beaten and mixed with one gill of cream; add to the soup, along with one ounce of grated cheese, a little white pepper, and a small pinch of cayenne. Stir till thoroughly heated, but do not allow to boil.

Soup—Mock Turtle.

Put a well-fed calf's head on in a large pot with cold water, and one tablespoonful of washing soda, allow it to come to a boil, turning it occasionally, then take it out, and scrape the hair clean off with a sharp knife, after which wash it well and put it in

cold water. When quite cold, take it out of the water, remove the flesh on both sides from the bone; divide the head, take out the tongue, and saw the bones into convenient pieces. Place the bones at the bottom of the soup-pot, then the sides of the head, the tongue, a knuckle of veal, and an old fowl from which the breast fillets have been removed, add about eight quarts of cold water, cover closely, and skim carefully when it comes to a boil. Allow it to boil steadily for about an hour, take out the sides of the head, and lay them aside; let it boil an hour longer before taking out the tongue, which skin and lay aside. Now add to the soup one carrot, a small head of celery, one small turnip, four onions, one bay leaf, Jamaica and black pepper-corns, half an ounce of each, and a little salt. Before adding the pepper-corns let them be put into a bowl, well covered with cold water, and allowed to stand on the stove till thoroughly heated and the color drawn, which helps to darken the soup. Let it boil slowly and steadily for another two hours, and strain, after which put it in a cool place for at least twelve hours; then, after removing the fat carefully, put on in a clean pan, with the whites and shells of two eggs, slightly beaten with a gill of cold water; stir until it boils, cease stirring, and let it boil for five minutes; then remove a little back from the fire, let it stand with a lid on it for ten minutes, and pour through a jelly bag. Cut the head and tongue into small pieces about an inch square; have small quenelles made from the breast of the fowl, poach them in boiling water for five minutes, and add along with the small squares of meat to the soup, just before serving.

Another—Boil one pound of calves' liver and two pounds of veal two hours, skimming well, then strain. Chop the meat fine and add to it a small onion,

chopped, salt, pepper and ground cloves to taste, thickening all with a tablespoonful of browned flour, and boiling all up together. Have four hard-boiled eggs cut up in tureen, also one lemon, sliced.

Soup—Mulligatawny (Maigre). Three Pints.

Peel two apples and one Spanish onion, and mince together not too finely, brown about one ounce and a half of butter in a frying-pan, put them in and fry till very much browned and reduced, stirring constantly to prevent burning, then add one tablespoonful of flour, one teaspoonful of curry powder, and half a pint of sweet milk, previously well mixed in a bowl; stir thoroughly; let it boil for a minute, then pour into a clean pan, add a quart of vegetable stock, and boil for half an hour, removing the scum as it rises. If convenient the addition of half a gill of cream, just before pouring into the tureen, will be found to be an improvement, but it is good enough without. Serve with boiled whole rice on a separate dish.

Soup—Mutton Broth.

Boil the scrag in between three and four quarts of water; skim it as soon as it boils, and put in a carrot and turnip, a crust of bread, an onion, a small bunch of herbs; let these stew; put in the other part of the neck that it may be boiled tender; when done enough, take out the mutton, strain the broth, put the mutton in again with onions and a little chopped parsley; boil these about a quarter of an hour; the broth and the mutton may be served together in a tureen, or the meat in a separate dish; do not serve the scrag unless particularly liked. Some do not like herbs. The broth must then be strained off. The broth may be thickened either with crumbs of bread or oatmeal.

Another for Invalids.—Take a pound or two of the chump end of a loin of mutton; take off the skin and the greatest part of the fat, and all the suet from the under part; put it into a saucepan with a quart of soft water to a pound of meat, a little salt and upper crust of bread, and a little pepper; skim it very clean and let it simmer an hour; pour the broth clear off, and send it to table; the mutton will be fit to eat. Sauce—mashed turnips, but do not boil them in the broth.

Soup—Oyster.

Put a quart of milk into a double boiler. Let it become thoroughly heated. Put into it one quart of oysters and the liquor. Let it come to a boil and skim, then let it boil for about five minutes, and season with butter, pepper and salt.

Soup—Oyster Stew.

Stew the oysters in their own liquor, and season to the taste with a little salt and pepper; butter may be added. Stews are often improved, in the opinion of many, by the addition of milk or cream, and condiments—in the way of mace, parsley or nutmeg. If thickening of the soup is desired, grated cracker is preferable to flour. The best cooks omit flour entirely. A piece of butter rolled in grated cracker may be added. Pour the oysters, when done, over a dish floored with crackers, or covered with layers of crispy toasted bread.

Soup—Green Pea.

Cover a quart of green peas with hot water, and boil with an onion until they mash easily. Mash and add a pint of stock or water. Cook together two tablespoonfuls of butter and one of flour, until smooth, but not brown. Add to the peas, and then add a cupful of cream and one of milk. Season with salt and pepper, and let it boil at once. Strain and serve. A cupful of

whipped cream added is a great improvement.

Soup—Potato.

One quart of milk, six large potatoes, one stalk of celery, one onion, one tablespoonful of butter. Put milk to boil with onion and celery. Pare the potatoes and boil thirty minutes, or until done. Turn off the water and mash fine and light, add boiling milk and the butter, salt and pepper to taste. Rub through a sieve and serve immediately. This soup must not be allowed to stand. A cupful of whipped cream is a great improvement.

Soup—Tomato.

One quart can of tomatoes, two heaping tablespoonfuls of flour, one of butter, one teaspoonful of salt, one of sugar, and a pint of hot water. Let the water and tomatoes come to a boil. Rub flour, butter and a tablespoonful of tomatoes together, stir in to boiling mixture, add the seasoning, and boil all together for fifteen minutes. Rub through a sieve.

Soup—Turkey.

A very good soup can be made from the remnants of a turkey. Flavor with celery and parsley, and add tomato and rice. Season with pepper and salt.

Soup—Plain White.

Knead two ounces of butter with two ounces of flour, put it on to melt in a saucepan, add one pint of sweet milk, stir and let it boil, then add two quarts of nicely-seasoned white stock, a little grated nutmeg, and salt if necessary. Let it boil about fifteen minutes, add a good tablespoonful of chopped parsley, and serve.

Soup—Vegetable.

Peel and slice six large onions, six potatoes, six carrots, and four turnips; fry them in half a pound of butter, and pour on them four quarts of boiling water. Toast a crust of bread as brown and hard as possible—but do not burn it—and put it in, with some celery, sweet herbs, white pepper and salt. Stew it all gently for four hours, and then strain it through a coarse cloth. Have ready thinly sliced carrot, celery and a little turnip. Add them to your liking, and stew them tender in the soup. If approved of, a spoonful of tomato catsup may be added.

Soup—Webster's Chowder.

Daniel Webster was famous for the excellence of his chowder, and the following is his recipe for making it: Four tablespoonfuls of onions fried with pork; one quart of boiled potatoes, well mashed; one and a half pounds of ship biscuit, broken; one teaspoonful of thyme; one half bottle of mushroom catsup; one bottle of port or claret; one half a nutmeg, grated; a few cloves, mace, allspice and slices of lemon, and some black pepper; six pounds of blue or white fish, cut in slices; twenty-five oysters. The whole to be put in a pot, covered with an inch of water, cooked slowly and stirred gently.

Soup—Veal Broth.

Put a knuckle of a leg or shoulder of veal, an old fowl, and four shank bones of mutton, three blades of mace, ten pepper-corns, an onion, a piece of bread, and three quarts of water into a soup pot; cover it up close, and after it has boiled up and been skimmed, strain, take off the fat and add salt.

FISH.

Fish—To Choose.

All fish, of whatever species, may be known to be perfectly fresh by their being rigid. If their gills are red, their eyes plump, and the whole fish stiff, they are good; if, on the contrary, the gills are pale, the eyes sunk, and the fish flabby, they are stale.

Mackerel must be perfectly fresh, or it is a very indifferent fish; it will neither bear carriage, nor being kept many hours out of the water. The firmness of the flesh, the clearness of the eyes, and the general brightness of its appearance, must be the criteria of fresh mackerel, as they are of all other fish. If the gills are not red, the fish is stale.

Turbot and all flat white fish are rigid and firm when fresh; the under side should be of a rich cream color. When out of season, or too long kept, this becomes a bluish white, and the flesh soft and flaccid. A clear, bright eye in any fish is also a mark of its being fresh and good.

Cod is known to be fresh by the rigidity of the muscles (or flesh), the redness of the gills, and clearness of the eyes.

Haddock are judged in the same way as cod. Both cod and turbot are in better condition for eating after they have been kept for a day than when quite fresh.

Salmon.—The flavor and excellence of this fish depend upon its freshness and the shortness of time since it was caught; for no method can completely preserve the delicate flavor that salmon has when just taken out of the water. When perfectly fresh, there is a creamy substance between the flakes; fine red at the gills; the scales should be very bright, and the fish very stiff.

Trout may be selected in the same way as salmon.

Herring should be eaten when very fresh; and, like mackerel, will not remain good many hours after they are caught. But they are excellent, especially for breakfast relishes, either salted, split, dried, and peppered, or pickled.

Mackerel are very good when prepared in any of the above ways.

Fresh-Water Fish.—The remarks as to firmness and clear, fresh eyes apply to this class of fish, of which there are bass, pike, perch, white fish, etc.

Lobsters, recently caught, have always some remains of muscular action in the claws, which may be excited by pressing the eyes with the finger; when this cannot be produced, the lobster must have been too long kept. When boiled, the tail preserves its elasticity if fresh, but loses it as soon as it becomes stale. The heaviest lobsters are the best; when light they are watery and poor. Hen lobsters may generally be known by the spawn or by the breadth of the "flap."

Crabs and Crayfish must be chosen by observations similar to those given above in the choice of lobsters. Crabs have an agreeable smell when fresh. When buying shell-fish, care should be taken that their weight is not due to wateriness.

Oysters.—If fresh, the shell is firmly closed; when the shells of oysters are open, they are dead, and unfit for food. The small-shelled oysters are the finest in flavor. Larger kinds are generally considered fit only for stewing and sauces, though some persons prefer them to the smaller oysters, even when not cooked.

Trout is a very fine fresh water fish; all the kinds of this fish are excellent, but the best are the red and yellow trout. The females are considered the best, and are known by having

a less head and deeper body than the male; their freshness is known by the same methods that have been already mentioned for other fish.

Fish—Boiled.

A general rule for boiling fish is to use fish weighing not less than three pounds. Boil in a fish-kettle covered with boiling salted water, simmering gently eight minutes to the pound. Serve with tomato, butter or egg sauce.

When Done.—The proper sign that fish is done by boiling is that the flesh separates readily from the bone, and has lost all appearance of redness and transparency. It is important that this should be kept in view, as fish underdone is unwholesome. The opposite extreme, however, must also be carefully guarded against.

Boiled Dried Fish.—Cut the fish down into pieces about four inches square, put them in cold water for a night; wash them well, put them in a saucepan, and cover with cold water; put them on the fire and let them just come to the boil; then set them over the side of the fire to simmer for three hours; pour out the water, and then cover them again with boiling water; set aside to simmer again for two hours, and have some hard-boiled eggs ready. When wanted, dish the fish upon a napkin, slice the eggs, garnish with them and parsley, and serve with egg sauce in a tureen (see Egg Sauce).

Fish Pudding.—Prepare dried fish exactly the same way as the above; take as many pieces as you think will be required; take off the skin, and pick out the bones and beat them in a mortar; have some potatoes mashed, mix the fish and potatoes, adding four ounces of butter, a little cream, and two teaspoonfuls of mustard; beat them all up together, place them upon a square dish, and trim them up neatly.

With the back of a knife mark cross-wise, in the form of a diamond; put some small bits of butter upon the top; brown them in the oven or before the fire, and serve with egg sauce.

Fish—Breaded.

Any kind of fish can be breaded. Take off the skin and cut in medium sized pieces. Season with salt and pepper. Dip in beaten egg, and roll in cracker crumbs. Fry in boiling hot lard or in a spider with slices of salt pork. Cook until a nice brown.

Fish—Scalloped.

Take one pound of cold boiled fish. Break into flakes with a fork and mix with cream sauce as for crêquettes. Season with salt and pepper. Put into scalloped shells. Sprinkle bread crumbs over the top with melted butter and bake twenty minutes.

Fish—Deviled Clams.

Chop fifty clams very fine. Take one-half eupful tomato, one onion, a little parsley chopped fine, pepper and bread crumbs, adding the juice of clams until the mixture is like sausage meat. Put in shells with butter on each. Cover with bread crumbs and bake twenty minutes.

Fish—Codfish Balls.

Pick up as fine as possible a teacup of nice white codfish. Freshen all night, or, if wanted for any other meal than breakfast, from the morning. Scald it once, and drain off the water. Chop and work it until entirely fine. Put it in a basin with water, a bit of butter the size of an egg, and 2 eggs. Beat it thoroughly, and heat it until it thickens without boiling. It should, when all is mixed, be about 1 quart. Have some potatoes ready prepared and nicely mashed. Work the fish and potatoes thoroughly as above, make it in flat cakes, and brown both sides.

Fish—Creamed Codfish and Potatoes.

Pick the codfish into small pieces. Thoroughly wash it in several cold waters. Pour milk or cream over it, and when it comes to a boil thicken with a little flour. Add a good sized piece of butter. After taking from the fire, add two well beaten eggs. Fill a baking dish with this and put on top of a thick layer of mashed potatoes. Put into the oven until a nice brown.

Fish—Crimped Cod.

For this dish take a very fresh cod, cut into the bone on both sides, with about two inches between each slice, then boil it in cold water with a little vinegar in it for about two hours. Put it on in boiling water with two handfuls of salt in it, and boil gently till done, skimming carefully. Drain and serve immediately with parsley, and butter sauce.

Fish—Cod au Gratin.

To prepare take the remains of cold boiled cod left from the previous day's dinner, take away the skin, carefully remove the bones, and separate the flakes without breaking them much. Butter a flat dish, put in alternate layers of the fish and sauce, sprinkling each very lightly with grated cheese, seasoned with a few grains of cayenne. On the top layer, strew rather thickly, brown bread crumbs or raspings, with here and there very small pieces of butter, and put it in the oven long enough to get thoroughly heated. Serve with a border of potato or rice croquettes, or, if something plainer is preferred, a border of mashed potatoes laid on before the dish is put into the oven.

Fish—Cod's Head and Shoulders.

Take a good cod, cut the head and shoulders size wanted, put fish upon a board, pour boiling water upon it, then

scrape it gently with a knife to take the black off, without taking the skin. When the fish becomes white, put it in cold water until it gets firm, and lay it in salt for some time. When you are to dress it, have a pan with boiling water and salt, put in the fish on a drainer and boil it for about forty-five minutes. Have the tail piece skinned and cut into small fillets, brushed with beaten egg, coated with bread crumb, and fried in boiling fat. Drain the head and shoulders, dish on a napkin with the fried pieces and sliced lemon placed alternately round it. Garnish with parsley, and serve with oyster sauce, or plain butter sauce in a sauce tureen.

Fish—Codfish Picked-up.

This is an old-fashioned dish and name, but none the less to be admired on that account, being with most persons, when properly prepared, a great favorite. Pick up the fish in small particles, separating the fibres as near as possible, the finer they are the better. Freshen by leaving it in water 1 hour. Pour off the water and fill up with fresh. Bring it to a scald, pour it off, and put on the fish just water enough to cover it. Add to a quart of the soaked fish a bit of butter the size of half an egg, a very little flour, and a dust of pepper. Beat up 2 eggs, and after taking off the fish thicken it by stirring in the egg. Some let it boil after the egg is added, but if this is done the egg will be curdled.

Fish—Codfish Pudding.

Three-quarters of a pound of codfish; pick it fine. Six large potatoes. When the potatoes are done, add the fish, and mash together. Add a good sized piece of butter, two well beaten eggs and three teaspoonfuls of milk. Bake about twenty minutes in a pudding dish.

Fish—Scalloped Cod.

Line a buttered baking dish with cold flaked cod, sprinkle with salt and pepper, cover with a layer of oysters (first dipped in melted butter, seasoned with lemon juice, onion juice, and a few grains of cayenne, and then in cracker crumbs), add two tablespoons of oyster liquor; repeat and cover with buttered cracker crumbs. Bake twenty minutes in hot oven. Serve with egg sauce.

Fish—Cod Steaks.

Cut from the tail end of a fresh cod three or four slices rather more than half an inch thick, remove the skin from them, and lay them on a dish. Mix two tablespoonfuls of salad oil with the same of vinegar, a few sprigs of parsley, and a little pepper and salt, with a spoon, pour this over the steaks, and let them remain in it for two hours. When wanted, wipe them with a clean cloth, dust some flour on both sides, then brush with beaten egg, coat with bread crumbs, and fry in boiling fat till they become a nice brown color. Serve hot with maitre d'hotel butter under them and garnished with parsley, or with plain butter sauce in a sauce tureen. For a small party of four or six persons, this way of cooking cod is very much to be preferred to the usual boiling.

Fish—Haddock, to Fry.

Skin the fish, cover it with bread crumbs and egg, seasoned with salt and pepper, and fry with boiling lard or butter.

Fish—Lobster in Aspic Jelly.

For one entree, cut tail of a cold boiled lobster in square pieces. Have ten small zephyr moulds, into each of which pour a little aspic jelly, allow it to set, after which put in a piece of lobster, then a little more jelly, to fix it; again allow it to set, and fill to the top.

When wanted turn out and arrange in a circle, with lettuce or endive in the center, mixed with a little Tartar or Mayonnaise sauce.

Fish—Salt Mackerel, Broiled.

Soak, flesh side down, for eighteen hours, in a pan of cold water. A half hour before cooking wipe dry on a soft cloth. Lay on a greased broiler and broil with flesh side down, over a clear fire. When almost done, turn and broil the skin side. Don't let it scorch. Lay the fish on a hot platter, and spread with butter.

Fish—Creamed Mackerel.

Having soaked the mackerel for 24 hours, lay it in a shallow stew-pan and cover with milk or cream. Let simmer for fifteen minutes. Remove the fish carefully and place on a hot dish. Add to the milk or cream in the stew-pan one tablespoonful each of butter and flour rubbed together. Stir until a little thickened and the flour cooled; add a little pepper and chopped parsley, and pour the sauce over the fish.

Fish—Mackerel, to Fry.

Divide the fish into pieces; remove the skin; dip them in beaten egg; strew on them chopped parsley and bread crumbs, and fry them. For sauce melt some butter with a little flour, put into it the roes of the fish, pounded; season with salt and Cayenne, and a little catsup, and pour it hot over the fish.

Fish—Oysters—To Bake, Roast, or Boil.

But a few minutes are required for this. Wash the shells clean. To roast, lay the shells on a gridiron, over a bed of live coals. When the shells open they are done. Lift off the top, and serve it under the shell. To bake them, put in a pan in hot oven; otherwise follow the same directions as for

roasting. To boil, put them in a pot of boiling water. Serve in the shell.

Fish—Creamed Oysters.

Heat a pint of cream. Put into it a pint of oysters. Let it boil slowly for about five minutes, being careful not to let them scorch. Thicken with flour and season with butter, pepper and salt, and serve on crisp toast.

Fish—Fried Oysters.

Roll fine, large oysters in cracker crumbs, which are seasoned with salt and pepper, then in beaten egg, and again in cracker crumbs. Fry in boiling lard until a nice brown. Serve immediately.

Fish—Panned Oysters.

Twelve large oysters with their liquor; salt and pepper to taste. Let them come to a boil. Have ready four slices of bread, toasted and buttered. Place on a platter with three oysters on each slice and pour juice over all. Serve very hot. Cream may be used to cook the oysters in if preferred.

Fish—Oyster Patties.

Take of oysters sufficient for the patties you may chance to want, strain the liquor and return it to them; mix them with very fine bread crumbs until they are of a proper thickness; add a little scalded cream, and season the whole with pepper, salt, and Cayenne pepper; warm the whole in a saucepan till it begins to simmer; when cold, put it in the paste, and bake it in the shape of small mince pies, 3 inches in diameter. The beards and horny parts should be cut off, and the oysters cut in two or three pieces.

Fish—Oyster Pigs in Blankets.

Roll a good sized oyster in a very thin strip of bacon and fasten with a small skewer; toothpicks are very good to use. Fry in boiling hot lard until done.

Fish—Scalloped Oysters.

Put into a buttered dish first a layer of oysters, then fine cracker crumbs. Season with plenty of butter, pepper and salt. Then again oysters, cracker crumbs and seasoning, and so on until the dish is full, having cracker crumbs on the top, with lumps of butter and seasoning. Cover with plenty of milk or cream, until the cracker crumbs are thoroughly soaked. It is better to let it stand for some time so as to add more milk or cream if necessary.

Fish—Baked Salmon.

Take a piece of salmon, and cut it in slices an inch thick; make a dressing as follows: Take some of the flesh of the salmon, and the same quantity of the meat of an eel, with a few mushrooms; season it with pepper, salt, nutmeg and cloves; beat it all together till it is very fine; boil the crumb of a large roll in milk; beat with it four eggs till it is thick, let it cool, and mix it all together with four raw eggs; take the skin from the salmon, and lay the slices in a dish; cover every slice with the dressing, pour some melted butter over them, and add a few crumbs of bread, lay the crust round the dish and stick oysters round it; put it into an oven, and when it is of a fine brown pour over it a little melted butter, with some port wine boiled in it, and the juice of a lemon.

Fish—To Broil Salmon.

Take some slices cut from a fine salmon, wipe them clean and dry; melt some butter smooth and fine, with a little flour and salt, put the pieces of salmon into it, and roll them about that the butter may cover them all over; then lay them on a nice clean gridiron, and broil them over a clear but very slow fire; while the salmon is broiling, make sauce with a couple of anchovies washed, boned, and cut into small pieces, a leek cut into three

or four long pieces; set on a saucepan with some butter and a little flour, put in the ingredients, with some capers cut small, some pepper and salt, and a little nutmeg, add to them some warm water, and two spoonfuls of vinegar; shake the saucepan till it boils, and the sauce is done; when the salmon is done on one side, turn it on the other till it is quite done; take the leek out of the sauce, pour it into a dish, and lay the broiled salmon upon it.

Fish—Escalloped Salmon.

Butter a pudding dish and put in alternate layers of salmon and cream sauce, made of milk or cream, thickened with a little flour and seasoned with butter, pepper and salt. Cover the top with bread crumbs. Pour a little melted butter over the top and put in the oven to heat through thoroughly and until the crumbs are a nice brown.

Fish, Salt—To Freshen.

Many persons who are in the habit of freshening mackerel, or other salt fish, never dream that there is a right and wrong way to do it. Any person who has seen the process of evaporation going on at the salt works, knows that the salt falls to the bottom. Just so it is in the pan where your mackerel or white fish lies soaking; and, as it lies with the skin side down, the salt will fall to the skin, and there remain; when, if placed with the flesh side down, the salt falls to the bottom of the pan, and the fish comes out freshened as it should be. In the other case it is nearly as salt as when put in.

Fish—Sardine Canapes.

Bone, skin, and trim three or four sardines, and mince very finely, add about half an ounce of butter, one teaspoonful of flour, one of Worcester sauce, one of ketchup, one of essence of anchovies, two eggs, a little Cayenne and salt if necessary. Mix all together, and put it on the fire in a sauce pan to heat and thicken, but not to boil. Cut out as many rounds of stale bread as will be required, with a two-inch cutter, fry them in boiling fat; cover them with the mixture, and serve hot.

Fish—Plain Way to Fry Small.

Clean, scrape off the scales, and trim the number required; sprinkle a little salt on, both in side and out, and let them lie for about two hours, then wipe with a cloth to absorb the moisture, sprinkle slightly with pepper, coat them with flour, after which shake them, so that what is loose may fall off. Have a common frying-pan, with three ounces of dripping quite hot, put in the fish, shake the pan a little at first, or move them gently with the fish slice, let them fry for eight minutes, then turn and cook the same time on the other side. Serve hot, garnished with parsley.

Fish—To Boil Trout.

Boil them in vinegar, water, and salt, with a piece of horse-radish; white sauce, anchovy sauce, plain butter.

Fish—To Fry Trout.

Dry them, rub them with yoke of egg, flour, or strew fine crumbs of bread on them; fry them; anchovy sauce.

BEEF.

Cooking Meats—Losses in.

While the investigations of the losses in cooking meat are still very inadequate, the conclusions given below seem warranted from the results of the experiments by the U. S. Department of Agriculture. Most of these experiments were made with lean beef, but it is probable that the results with other lean meats would be similar.

The chief loss in weight during the cooking of beef is due to the driving off of water.

When beef is "pan-broiled" there appears to be no great loss of nutritive material.

When beef is cooked in water, from 3 to 20 per cent. of the total solids is found in the broth. The material thus removed from the meat has been designated as a loss, but is not an actual loss if the broth is utilized for soup or in other ways.

Beef which has been used for the preparation of beef tea or broth has lost comparatively little nutritive value, though much of the flavoring material has been removed.

The amount of fat used in the broth varies directly with the amount present in the meat—i. e., the fatter the meat the larger the quantity in the broth.

The amount of water lost during cooking varies inversely as the fatness of the meat—i. e., the fatter the meat the less the shrinkage in cooking.

In cooking in water the loss of constituents is inversely proportional to the size of the piece of meat. In other words, the smaller the piece the greater the percentage of loss.

The loss appears to depend upon the length of time of cooking.

When meat in pieces weighing from $1\frac{1}{2}$ to 5 pounds is cooked in water at 175 to 185 degrees Fahrenheit, there appears to be little difference in the

amount of material found in the broth whether the meat is placed in cold water or hot water at the start.

The nature of the nitrogenous ingredients of the broth is not yet fully understood. This subject is now being studied in connection with further inquiries regarding the changes in meat in cooking.

Beef—To Choose.

The grain of ox beef, when good, is loose, the meat red, and the fat of a creamy white color. When fine and well-fed, the flesh is inter-grained or marbled with fat. If the fat is yellowish, the meat is either inferior, or the beast has been fed on oil-cake. Cow beef, on the contrary, has a closer grain and whiter fat, but the meat is scarcely as red as that of ox beef. Inferior beef, which is meat obtained from ill-fed animals, or from those which have become too old for food, may be known by a hard, skinny fat, a dark red lean, and in old animals, a line of horny texture running through the meat of the ribs. When meat rises up quickly, after being pressed by the finger, it may be considered as being the flesh of an animal which was in its prime; but when the dent made by pressure returns slowly, or remains visible, the animal had probably passed its prime, and the meat consequently must be of inferior quality.

Beef—Joints of.

Fore Quarter.—Fore rib (five ribs); middle rib (four ribs); chuck (three ribs, for second quality of steak). Shoulder piece (top of fore leg); brisket (lower or belly part of the ribs, salted, for boiling); clod (fore shoulder blade); neck; shin (below the shoulder, used for stewing); cheek.

Hind Quarter.—Sirloin; rump (the finest part for steaks); aitch-bone (the boiling piece)—these are the three di-

visions of the upper part of the quarter; buttock (prime boiling piece), and mouse-buttock, which divide the thigh; veiny piece, joining the buttock; thick flank (primest boiling piece) and thin flank (belly pieces), and leg. The sirloin and rump of both sides form a baron. Beef is in season all the year; best in winter.

Beef—Relative Economy of the Joints of.

The Round is, in large families, one of the most profitable parts owing to its comparative freedom from bone; it is usually boiled, and is generally sold at a lower price than the sirloin and ribs. It is sometimes divided downwards, close to the bone; one side being known as the top side, and the other as the silver side. Either of these parts is as good roasted as boiled.

The Brisket is always less in price than the roasting parts. It is not so economical a part as the round, having more bone with it, and more fat. Where there are children, very fat joints are not desirable, being often disagreeable to them, and sometimes prejudicial, especially if they have a dislike to fat. This joint also requires more cooking than many others; that is to say, it requires a double allowance of time to be given for simmering it; it will, when served, be hard and scarcely digestible if no more time be allowed to simmer it than that which is sufficient for other joints and meats. Joints cooked in a boiler or saucepan should always be simmered, that is to say, boiled as slowly as possible. Meat boiled fast, or "at a gallop," as the phrase goes, is always tough and tasteless. The brisket is excellent when stewed; and when cooked fresh (i. e. unsalted) an excellent stock for soup may be extracted from it, and yet the meat will serve as well for dinner.

The Edge-Bone, or Aitch-Bone, is not considered to be a very economical joint, the bone is large in proportion to the meat; but the greater part of it, at least, is as good as that of any prime part. On account of the quantity of bone in it, it is sold at a cheaper rate than the best joints. It may be roasted or boiled.

The Rump is the part of which the butcher makes great profit, by selling it in the form of steaks, but the whole of it may be purchased as a joint, and at the price of other prime parts. It may be turned to good account in producing many excellent dishes. If salted, it is simply boiled; if used unsalted, it is generally stewed.

The Veiny Piece is sold at a moderate price per pound; but if hung for a day or two, it is very good and very profitable.

The Leg and Shin afford excellent stock for soup; and, if not reduced too much, the meat taken from the bones may serve as a stew with vegetables; or it may be seasoned, pounded with butter, and potted; or, chopped very fine, and seasoned with herbs, and bound together by egg and bread-crumbs, it may be fried in balls, or in the form of large eggs, and served with a gravy made with a few spoonfuls of the soup.

The Sirloin and the Ribs are the roasting parts of beef, and these bear in all places the highest price. The more profitable of these two joints at a family table is the ribs. The bones, if removed from the beef before it is roasted, are useful in making stock for soup. When boned, the meat of the ribs is often rolled up in the shape of a small round or fillet, tied with string, and roasted; and this is the best way of using it, as it enables the carver to distribute equally the upper part of the meat with the fatter parts, at the lower end of the bones. The

tenderest part for frying or boiling, and one most extensively used in France, is the 'entrecote.' It is the undercut of the sirloin, either cooked whole or cut into fillets.

Ox-tail is much esteemed for purposes of soup; so also is the cheek. The tongue is highly esteemed. The heart, stuffed with veal stuffing, roasted, and served hot, with red currant jelly as an accompaniment, is a palatable dish.

Calves' Heads are very useful for various dishes; so, also, are their knuckles, feet, heart, etc.

Beef Collops.

Cut the fillet from the under part of a rump of beef into thin slices, and broil until nearly done; put into a saucepan with a little beef stock; add slices of lemon, 2 tablespoonfuls of catsup, and stew till tender; $\frac{1}{2}$ a pint of oysters is an improvement to this dish.

Beef, Corned—To Boil.

Wash it thoroughly, and put it in a pot that will hold plenty of water. The water should boil when the beef is put in, and great care should be taken to skim it often; $\frac{1}{2}$ an hour for every pound of meat is sufficient time. Corned beef, to be tender and juicy, should boil very gently and long. If it is to be eaten cold, take it from the pot when boiled, and lay it in an earthen dish or pan, with a piece of board upon it, the size of the meat. Upon this put a heavy stone or couple of flat-irons. It greatly improves salt meat to press it.

Beef—Creamed Corned.

Heat in the double boiler a pint of milk with half a cupful of bits of celery. When the milk is hot skim out the celery and stir in two tablespoonfuls of butter and two of flour, which have been creamed together. Cook ten minutes, add two cups cold corned beef cut in very small pieces.

Pour into a pudding dish and cover with cracker crumbs, which have been moistened in melted butter. Bake until the crumbs are brown.

Beef—To Cure.

Cut up the beef, and weigh and bulk it up, sprinkling a little salt over it, and let it lie ten or twelve hours, then pack it down in the barrel. To one hundred pounds of beef take one quart of salt, three and one half pints of molasses, one tablespoonful of saltpetre. Put all this into sufficient water to cover the beef; boil the pickle, and skim off all the scum, and when cold pour it over the beef, and weigh it down. Keep the beef covered with the pickle.

Beef, Curried—Madras Style.

Place 2 tablespoonfuls of butter in a saucepan, with 2 small onions cut in thin slices; fry until brown; add a tablespoonful and a half of curry powder, and mix all together. Take 3 pounds of beef; cut in small pieces an inch square; pour over them the milk of a cocoanut, and a $\frac{1}{4}$ of the meat of the nut grated fine and squeezed through muslin with a little water; this softens the taste of the curry, and no curry is ever made without it in India. If there is not liquor enough, add $\frac{1}{2}$ a teacupful of boiling water; let the whole simmer for 30 minutes. Serve in a dish with sliced lemon, and a wall of mashed potatoes or boiled rice around it.

Beef Cutlets.

Cut the inside of a sirloin or rump in slices $\frac{1}{2}$ an inch thick; trim them neatly; melt a little butter in a frying-pan; season the cutlets; fry them lightly; serve with tomato sauce.

Beef—Dry.

The good qualities of dried beef as an article of food for the family are not fully appreciated. In point of

excellence it is one of the richest articles, when properly prepared, that we have in our store-room. It is also one of the most economical articles of food; quite a small quantity of dried beef, shaved very fine, and cooked with a nice gravy, will serve for meat for a family at a very small expense. Then it is so convenient to have; always ready; always acceptable. To people who live convenient to market, it is not of so much importance; but to those who live at a distance from towns, dried beef is one of the necessary articles in the bill of fare. We frequently entertain guests at our table who never have seen dried beef served other than as a relish for bread and butter, shaved and eaten without cooking. There are several methods of cooking it. Some prefer it cooked with a gravy of water, seasoned with butter, thickened with flour, and perhaps eggs broken in while cooking. Others cook it with crumbs of sausage, frying the sausage first, then adding the beef with water, and thickening with flour. It is also very good cooked with a little sweet milk and sweet cream, the gravy being thickened with flour; allow it to boil once; that is all the cooking it requires. A dish of dried beef, properly cooked, served with toast, baked potatoes, and boiled eggs, is a very nice provision for breakfast or a dinner prepared in haste. When too salty, it can be remedied by soaking, after cutting and before, and adding a little white sugar while cooking, to restore the sweetness lost by soaking. Sugar-cured beef is much nicer than that cured with salt alone. I put mine into a sweet brine, such as is used for pork hams.

Beef—Fillet of.

Take the sirloin or second cut of the ribs; take out the bones with a sharp knife, and skewer it round in good

shape; lay the bones in a large sauce-pan, with 2 onions, 1 carrot, and 12 cloves; add the meat, just covered with water. Let it cook slowly two hours; dish the meat; skim all the fat from the gravy, add some flour mixed with cold water, and 2 spoonfuls of walnut catsup; give all a boil. Turn part of the gravy over the meat, and serve the rest in a gravy tureen.

Beef—Fillet of, with Mushrooms.

Cut the fillet into slices, and pour over them some melted butter, seasoned with pepper and salt; let them stand for an hour; then put them in a frying-pan over a quick fire to brown lightly; take them out, and put in the pan flour enough to thicken and brown; mix smoothly, and add some stock.

Beef Hash.

Take nice slices of cold sirloin or ribs of beef; cut off all the outside brown and gristle; make with these and the bones a brown gravy as directed; cut a good-sized carrot and turnip in small pieces; stew till tender; lay the slices of meat in a stew-pan with the carrot and turnip; pour over a pint of the gravy, thickened with a bit of butter rolled in flour, 6 pickled mushrooms, and 3 pickled walnuts cut in halves. Set the stew-pan by the fire until the meat is thoroughly heated, but do not let it boil.

Beef—Hamburg Steaks.

Half pound lean raw beef chopped fine, seasoned with onions, salt and pepper. Shape into small flat balls, using but little pressure. Put into a frying-pan a small piece of butter, and when hot put in the steak; turn frequently. A little chopped salt pork is an improvement. A few gratings of nutmeg and one egg, slightly beaten, may be used.

Beef—Leg of, to Bake.

Cut the meat off and break the bones. Put them all into an earthen pan with

2 onions and a bundle of sweet herbs, and season with whole pepper, cloves, and blades of mace. Cover it with water, tie the top close with brown paper, and put it in the oven. When done, take out the pieces of meat, lay them in a dish, and return them to the oven to keep hot. Skim off the fat and strain the liquor; pick out the bones and sinews, and put them in a saucepan with a little of the gravy, and butter rolled in flour. When hot pour it into the dish with the meat.

Beef Liver—Fried in Crumbs.

Season slices of liver with salt and pepper. Dip in beaten egg and very fine cracker crumbs. Fry six minutes in boiling lard.

Beef Loaf.

Chop fine about four pounds of steak; add to it half a cupful of suet chopped fine, two tablespoonfuls of melted butter, one dozen crackers rolled fine, pepper and salt to taste, and onion if liked. Make into a loaf about three inches thick. Put into a pan and bake slowly until a crust forms. Baste it while browning in the oven.

Beef—Pickled.

Rub each piece of beef very lightly with salt; let them lie singly on a tray or board for 24 hours, and then wipe them very dry. Pack them closely in a tub, taking care that it is perfectly sweet and clean. Have the pickle ready, made thus: Boil four gallons of soft water with ten pounds of coarse salt, four ounces of saltpetre, and two pounds of coarse brown sugar; let it boil 15 minutes, and skim it while boiling very clean. When perfectly cold pour it on the beef, laying a weight on the top to keep the meat under the pickle. This quantity is sufficient for 100 pounds of beef if closely packed.

Beef—Potted.

Salt 3 lbs. of lean beef, with $\frac{1}{2}$ a lb. of salt and $\frac{1}{2}$ an oz. of saltpetre. Let

it stand 3 days. Divide it into pieces weighing a pound each, and put it in an earthen pan of just sufficient size to contain it; pour over it $\frac{1}{2}$ a pint of water, cover it close with a plate, and set it in a slow oven for 4 hours. When taken from the oven, pour the gravy into a basin, shred the meat fine, moisten it with the gravy poured from the meat, and pound it thoroughly in a marble mortar, with fresh butter, until it becomes a fine paste; season it with black pepper and allspice, ground cloves, or grated nutmeg; put it in pots, press it down as closely as possible, put a weight on it, and let it stand all night; next day, cover it a $\frac{1}{4}$ of an inch thick with clarified butter, and tie paper over it.

Beef—Braised Ribs of.

Take two or three ribs of beef according to the quantity required, and saw off a piece of the chine-bone, so as to flatten it for dishing. Mix two ounces of salt with one and a half of brown sugar, rub it well into the beef, and let it stand for two days. Brown three or four ounces of butter in an oval stew-pan, put in the beef and brown it nicely all over, being careful not to let it burn. When it is well browned add about a pint of stock, or more if necessary, one tablespoonful of vinegar, the same of ketchup, and a little pepper. Cover closely, and simmer slowly for an hour and a half, then take out the beef, skim off the fat, and thicken with corn flour. Return the beef to the pan along with half a pound of sultana raisins, and balls of carrot and turnip previously scooped out, and cooked separately in water with a pinch of brown sugar. Let it simmer slowly for nearly an hour. Have a dozen small onions peeled, and add them half an hour before dishing, or long enough to cook them thoroughly without breaking. Serve with the

sauce poured over the meat, and the vegetables neatly arranged around it.

Beef—To Roast.

The noble sirloin of about 15 lbs., (if much thicker the outside will be done too much before the inside is enough) will require to be cooked about $3\frac{1}{2}$ or 4 hours. Put a little clean dripping into the dripping pan; (tie a sheet of paper over it to preserve the fat); baste it well as soon as it is put in, and every $\frac{1}{4}$ of an hour all the time it is roasting, till the last $\frac{1}{2}$ hour; then take off the paper and make some gravy for it; to brown and froth it, sprinkle a little salt over it, baste it with butter, and dredge it with flour; let it go a few minutes longer, till the froth rises; take it up, put it on the dish, etc.

Beef Roast—Yorkshire Pudding for.

Three-quarters of an hour before your roast is done mix the following and pour into the pan with the meat: One pint of milk, four eggs beaten very light, pinch of salt, one cup flour. Cut into pieces and serve with the roast.

Beef, Rump of—To Bake.

Cut out the bone and break it, and beat the flesh with a rolling pin; season with pepper, salt, and cloves, and lard the meat across. Put the meat into an earthen pot, with the broken bones, some butter, bay leaves, whole butter, 1 or 2 shalots, and sweet herbs; cover it close, and place it in the oven; it will require six hours to bake. Skim off the fat, dish the meat, and serve with dried sippets and its own liquor.

Beef Steak—Grilled.

Have the steak cut from the heuch-bone or ribs. Have a clear fire and clean gridiron; let it become hot, then rub it with a little suet, lay on the steak, keep turning it constantly, from seven to ten minutes, according

to the thickness of the steak. Have the dish before the fire very hot, put the steak on it, sprinkle with salt, put on the cover, also heated, and serve with horse-radish.

Beefsteak—How to Cook.

The frying-pan being wiped dry, place it upon the stove and let it become hot. In the mean time mangle the steak—if it chance to be sirloin, so much the better—pepper and salt it, then lay it on the hot, dry pan, which instantly cover as tight as possible. When the raw flesh touches the heated pan, of course it seethes and adheres to it, but in a few seconds it becomes loosened and juicy. Every 30 seconds turn the steak; but be careful to keep it as much as possible under cover. When nearly done lay a small piece of butter upon it. In 3 minutes from the time the steak first goes into the pan it is ready for the table!

Beefsteak and Onions.

Cut the steaks about $\frac{3}{4}$ of an inch thick; put a good lump of dripping or lard into your pan, and when it is hot lay in the steaks; turn them frequently, so that they may not burn; let them be nicely browned all over, and when cooked lay them in a hot dish before the fire; mean time have in readiness a plateful of onions, sliced very thin, and sprinkled with pepper and salt; put them into the pan, and lay a dish over them to keep in the steam; turn them about, and let them be cooked thoroughly. They will require a long time; they should be soft and brown; when done, pour them over the steaks and serve up hot.

Beefsteak Rolls.

Cut nice, small, thin steaks, and fry them slightly, make a stuffing as if for roast veal or turkey; roll up the steaks, putting the stuffing inside each roll; skewer or tie them neatly, stew

them in a rich, brown gravy for 20 minutes and serve.

Beef—Stewed with Onions.

Cut some tender beef into small pieces, and season with salt and pepper; slice some onions and add to it, with water enough in the saucepan to make a gravy. Let it stew slowly till the beef is thoroughly cooked, then add some pieces of butter rolled in flour, enough to make a rich gravy. Cold beef may be cooked before adding them to the meat. Add more water if it dries too fast, but let it be boiling when poured in.

Beefsteak—Stuffed.

Spread dressing, as for duck, on a thick beef steak; season; roll it up; tie, and roast. Baste often; serve with gravy.

“The Best Way to Cook Tenderloin.”

If it is a large one split it nearly open. Take a quart of oysters, or less, out of their liquor, roll in bread crumbs and lay in the tenderloin; fold together and tie with a cord. Lay in dripping-pan and bake one hour.

Beef—Boiled Tongue.

After boiling a tongue until tender, pack tightly into a bowl; cover with a plate on which put an iron or something heavy. When this is cold it can be cut to much better advantage, and in larger slices.

Beef—Stewed Tongue.

Get a good fresh tongue, rub it well with common salt and saltpetre, and let it lie four days, wash it well, put it on the fire, with as much cold water as will cover it; let it boil slowly for two hours; then take it out, skin, and trim it neatly. Brown a little butter in a saucepan, then put in the tongue and brown it, add one pint of the liquor in which it was boiled, two whole onions, two slices of turnip, a few pieces of celery, and let it simmer by the side of the fire. When wanted, take out the tongue, glaze, and keep it hot, pick the vegetables out of the sauce, add a spoonful of mushroom ketchup, one of lemon pickle, pepper and salt to taste. Dish the tongue, which you can either serve plain or garnished with spinach.

MUTTON AND LAMB.

Mutton—To Judge its Quality.

The meat should be firm and close in grain, and red in color; the fat white and firm. Mutton is in its prime when the sheep is about 5 years old, though it is often killed much younger. If too young, the flesh feels tender when touched; if too old, on being pinched it wrinkles up, and so remains. In young mutton, the fat readily separates; in old, it is held together by strings of skin. In sheep diseased with the rot, flesh is very pale-colored, the fat inclining to yellow; the meat appears loose from the bone, and, if squeezed, drops of water ooze out from the grains; after cooking, the meat drops clear away

from the bones. Wether mutton is preferred to that of the ewe; it may be known by the lump of fat on the inside of the thigh.

Mutton—Joints of.

Shoulder; breast (the belly); over which are the loin (chump, or tail end); loin (best end); neck (best end); neck (scrag end); leg; haunch, or leg and chump end of loin; and head. A chine is two necks; a saddle, two loins. Mutton is best in winter, spring and autumn.

Lamb.

This meat will not keep long after it is killed. The large vein in the neck

is bluish in color when the fore quarter is fresh, green when it is becoming stale. In the hind quarter, if not recently killed, the fat of the kidney will have a slight smell, and the knuckle will have lost its firmness.

Lamb—Joints of.

Lamb is cut into fore quarter and hind quarter, saddle, loin, neck, breast, leg and shoulder. Grass lamb is in season from Easter to Christmas.

Lamb—To Keep Fresh in the Summer.

In a few hours after the lamb is slaughtered, take all four quarters and cook them done. Each subsequent day afterwards, as you prepare your dinner, place the remaining quarters back in the stove and thoroughly heat them; this seems to prevent taint from appearing. In this way any kind of fresh meat can be kept sweet for a week, in the hottest weather.

Stewed Breast of Lamb and Peas.

Roast a breast of lamb a quarter of an hour, then put it into a stew-pan with one quart of stock gravy; add a very small onion, a quarter of a carrot, the same of turnip, cut very small; let them stew half an hour gently; put in a little mushroom catsup, and a quart of green peas, already cooked; if necessary, thicken with a little flour.

Lamb Chops.

Cut a loin or best end of the neck in chops, flatten them, brush over with egg; and coat with a mixture of bread crumbs, minced parsley, pepper and salt. Have plenty of drippings in the frying pan, put in the chops, and fry them nicely on both sides for twenty minutes. Have some spinach boiled, turn it out, and place the chops neatly round it, and serve with cucumber sauce.

Lamb—Boned Fore-Quarter of.

Have a fore-quarter, take out first all the ribs, then the breast-bone, slit up and take out the shoulder-blade, then the shank-bone to the first joint; roll up neatly, and cord. Roast about an hour and a half, basting it well. If served cold, garnish with sliced cucumbers, radishes and cresses.

Lamb's Head and Appurtenances—To Dress.

Wash it very clean; take the black part from the eyes and the gall from the liver; lay the head in warm water; boil the lights, heart and part of the liver, chop and flour them, and toss them up in a saucepan with some stock gravy, catsup and a little pepper, salt, lemon juice, and a spoonful of milk; scatter over the head some bread crumbs and bake it an hour; lay it in the middle of the dish, the minced meat round it; the other part of the liver fried with some very small bits of bacon on the minced meat and the brains fried in little cakes and laid on the rim of the dish with some fried parsley put between; pour over it a nice rich gravy.

Lamb—Hind-Quarter of.

Have the gigot cut out neatly; wash it well in warm water, put it into a pan with boiling water and a little salt, and let boil for one hour and a half. Cut the loin in chops, brush them over with beaten egg, cover them with bread crumbs, and fry them till well done, a fine light brown. Add a little pepper and salt while frying. Dish the gigot of lamb, lay the chops neatly round it, and garnish with parsley and sliced cucumbers. Serve with melted butter and mint sauce.

Lamb—Leg of, To Boil.

It must be put into boiling water, then the saucepan (or deep fish-kettle with a drainer is best) drawn back, and the water allowed to simmer gently, reckoning 18 minutes to each lb.; if

it boils fast, the meat will be hard and the skin broken. It should be lifted out of the water with the drainer, and no fork be stuck into it; if the scum has settled upon it, wash it off with some of the liquor before sending to table. Parsley and butter are served with this, or delicate caper sauce and young carrots.

Lamb Pie—A Very Fine.

Cut your lamb into pieces and season it with pepper, salt, cloves, mace, and nutmeg all finely beaten; make a good puff paste crust, lay it into your dish, then lay in your meat, scatter on it some stoned raisins, and currants, cleaned, washed, and some sugar, then lay on some forcemeat balls made sweet, and in the summer some artichoke bottoms boiled, and scalded grapes in the winter; boil Spanish potatoes cut in pieces, candied citron, candied orange and lemon peel, and three or four blades of mace; put butter on the top, close your pie, and bake it. Have ready for it a sauce made thus: Take a gill of sherry and mix in the yolk of an egg, stir it well together over the fire one way till it be thick, then take it off, stir in sugar enough to sweeten it, and squeeze in the juice of half a lemon; pour it hot into your pie, and close it up again. Send it hot to table.

Lamb with Rice.

Have a fore-quarter of lamb, wash it well, and half roast it. Cut it up into steaks and season with pepper and salt; add a teacupful of stock; boil half a pound of whole rice, strain it, put in two ounces of butter to the rice, beat up the yolks of three eggs, stir them together, and cover the lamb with the rice. Put a border of paste upon the dish, then put it into the oven, and bake it until the paste is done. The rice by that time will be a fine light brown.

Lamb—To Roast.

The hind quarter of lamb usually weighs from 7 to 10 lbs.; this size will take about 2 hours to roast it. Have a brisk fire. It must be frequently basted while roasting, and sprinkled with a little salt, and dredged all over with flour, about $\frac{1}{2}$ an hour before it is done.

Another.—Have a hind-quarter of lamb, notch it at the loin, cover with buttered paper, and roast for two hours, basting it well. Take off the paper fifteen minutes before you remove it from the fire, to let it brown. Dish it with a frill of white paper on the shank. Have a little boiling water and salt with the gravy in a dripping-pan; let it boil, pour it over the lamb, and serve with mint sauce.

Lamb—Shoulder of.

Have it boned and stuffed, then put it into boiling water, and let it boil quickly for one hour. Take it out and glaze it, and put it in the oven until required. Dish it up on spinach and turnips. Serve it with melted butter, a little lemon pickle, and garnish with sliced cucumber.

Mutton—Time Required for Cooking.

Mutton should be roasted ten minutes to the pound, and boiled a quarter of an hour.

Collared Breast of Mutton.

Take the skin off and bone it, roll and tie it round with tape, put a pint of milk and two ounces of butter into the dripping-pan, and baste it well while it is roasting. Serve with a rich sauce (see Mock Venison). Currant jelly to be on the table.

Mutton Chops.

To cook mutton chops well is a great art; they should not be cut too thin, and should be done over a nice

bright coal fire, they will take from eight to ten minutes; when the fat is transparent and the lean feels hard, the chop is done; it should be served on a very hot plate, and with a nice mealy hot potato. In dressing a chop never stick a fork into it. Tomato sauce is likewise served with it.

Mutton Cutlets—Crumbed.

Season the chops with salt and pepper, dip them in melted butter and roll in fine bread crumbs. Broil for eight minutes over a fire, not too bright, as the crumbs burn easily.

Mutton—To Boil a Gigot of.

Cut a piece off the point of the shank-bone, and put it into an oval pot with plenty of water, slightly salted. When it boils again, draw it to one side of the fire, and let it boil slowly two and a half hours. Some like it underdone, and in that case two hours will do it. Garnish the shank with a frill of white paper, and serve with caper sauce.

(The water in which any fresh meat has been boiled ought to be kept either for stock, or making broth.)

Mutton—Roast Gigot of.

Have the mutton cut in the form of a bacon ham; cut about three inches off the point of the shank; if to roast upon a spit, two hours and a half will do before a clear fire; if in the oven, about two hours, basting it frequently. Before dishing, melt a little butter, dust the roast with flour, baste it with the butter, and when it froths up, dish it and put a frill of paper around the shank. Have a little gravy in a saucepan, a little salt, a tablespoonful of vinegar, and when it boils, pour it over the mutton. Serve with melted red currant jelly in a sauce tureen.

Mutton—Scotch Haggis.

Clean the bag and let it lie in cold, salted water for twelve hours, then put it aside with the rough side turned out. Wash the sheep's pluck well and put it

on to boil covered with cold water. Carefully remove all scum as it rises, add a little salt, and boil the pluck for one hour. When cold trim off any hard or discolored parts, chop up the heart and the lights and grate half of the liver. Put all these in a bowl and add to them half a dessert-spoonful of salt, half a teaspoonful of Jamaica pepper, and half a teaspoonful of black pepper. Toast a breakfast-cupful of oatmeal in the oven for ten minutes, and chop very finely half a pound of suet. Add these to the other ingredients, and mix all with some of the water in which the pluck was boiled. Put the mixture into the prepared bag, being careful to leave plenty of room for the haggis to swell. Sew it up securely and put it in a large pan of warm water with half a pint of milk in it. For a short time keep piercing it now and then with a large needle to let the heated air escape, and so prevent bursting. Let it boil steadily for three hours without the lid, and serve very hot without garnish of any kind. The milk in the water tends to make the outside of the haggis white.

If onions are liked a few can be minced, scalded in boiling water, and added. Should the haggis be made some time before it is wanted, and so require to be heated again, it should, when wanted, be put into a pan of boiling water, and allowed to boil for an hour and a half with the lid off.

Mutton Hams—To Pickle for Drying.

First take weak brine and put the hams into it for two days, then pour off and apply the following, and let it remain on from two to three weeks, according to size: For each 100 pounds take salt, 6 pounds; saltpetre, 1 ounce; saleratus, 2 ounces; molasses, 1 pint; water, 6 gallons will cover these if closely packed.

Haunch of Mutton (Plain).

With plain roast or boiled joints of mutton, you should observe simplicity and cleanliness in cooking them. The haunch of mutton should hang as long as it will keep good; then cut off the shank and trim the flap, or under part, put it down to a brisk fire, keeping it near the fire for the first ten minutes, and then at a moderate distance until done; before taking it up, dredge with a little flour and put it closer to the fire to froth it up; then dish; pour a pint of boiling water over the meat, to which add a little coloring and catsup.

This recipe presupposes the use of a spit.

Another Way.—Take a haunch of mutton well hung, trim it properly, tie it in a cloth, and boil one hour; then take it up and roast one hour and a quarter. When nearly the time to dish, baste it with a little butter in the ladle, dredge it with flour and salt, let it brown, then dish and serve with a rich gravy (see Mock Venison).

Mutton—Boiled Leg of (Plain).

Boil a leg of mutton, allowing a quarter of an hour to each pound, putting it in cold water; and when done, serve with caper sauce.

Mutton—Boiled Leg of.

Wipe meat, place in a kettle, and cover with boiling water; bring quickly to boiling point and boil five minutes, and skim. Set on back of range and simmer until meat is tender; when half done add one tablespoonful of salt. Serve with caper sauce, or add to two cups white sauce (made of one-half milk and one-half mutton stock) two hard boiled eggs cut in slices.

Mutton, Leg of—Boiled with Cauliflowers and Spinach.

Take a leg of mutton and boil it in a cloth; have three or four cauliflowers boiled in milk and water; pull them into sprigs, and stew them in butter,

pepper, salt and a little milk. Stew some spinach in a sauce pan; put to the spinach a quarter of a pint of gravy out of the mutton saucepan, a piece of butter and flour; when it is done put the mutton in the middle of the dish, the spinach round it, and the cauliflowers over all. The butter the cauliflower was boiled in must be poured over it, and it must be melted like a fine, smooth cream.

Mutton—Stewed Leg of.

Put it into the saucepan with either broth or water, two or three carrots, a turnip, an onion, and a few black pepper-corns. After coming to a boil, simmer for two hours and three-quarters, take out the broth and vegetables, dredge the meat with flour, and put it again on the fire to brown, leaving off the cover. Pulp the vegetables through a sieve, and boil them up with the gravy, adding a tablespoonful of vinegar. Pour part of the sauce on the meat and send the rest to table in a tureen.

Mutton, Leg of—Stuffed with Oysters.

Make a force-meat of beef suet, chopped small, two eggs, boiled hard, a tablespoonful of anchovy sauce, a small onion, thyme, and a dozen oysters, cut very small, some grated nutmegs, pepper, salt, and crumbs of bread, and one egg beaten, all mixed up together; stuff the mutton under the skin, in the thickest part under the flap and at the knuckle; serve with a sauce made thus: stew a dozen oysters; add a little port wine, some anchovy sauce, and a little thickening; pour it over the mutton. Having been prepared in this way, it may either be roasted or boiled, whichever you prefer.

Mutton—Minced.

One cupful of minced mutton, one cupful of boiled rice, one cupful of stewed tomatoes, a little grated onion,

half a cupful of butter, salt and pepper. Cook altogether for fifteen minutes. Garnish the platter with small pieces of toast.

Mutton—Neck of.

The neck of mutton may be boiled plain, as the leg, or as:

Irish Stew.

Cut it into two outlets and boil it gently for an hour and a half with two large onions cut up and put in with it. Have some potatoes ready cooked, mash them and put into the saucepan with the meat. Look to see that there is not too much liquor in the saucepan, for it should not be too thin; season to taste with pepper and salt, then serve, laying the outlets round the dish, and the mashed potatoes on them with some whole potatoes in the middle. This is best on a cold day.

Mutton—Ragout of.

Brown four tablespoonfuls of flour, add a small piece of butter and a tea-cupful of water. Stir this well. Cut into small pieces about two pounds of lamb or mutton, add to this salt and pepper, a quart of water, and a quart can of tomatoes, three carrots, three onions and a dozen potatoes. Simmer for four hours.

Mutton—Saddle of.

Mutton for a saddle should always be dressed at market. Wipe meat, sprinkle with salt and pepper, place on rack in dripping-pan, and dredge meat and bottom of pan with flour. Bake in hot oven one and one-fourth hours, basting every fifteen minutes; serve with currant jelly sauce.

Mutton, Saddle of—To Cook Plain.

Take off the skin near the tail without taking it quite off or breaking it; take some lean ham, green onions, parsley, thyme, and sweet herbs, all chopped together, with some allspice,

pepper and salt, strew it over the mutton where the skin is taken off; put the skin over it neatly and tie over it some buttered paper; roast it; when it is nearly done, take off the paper, scatter over it some grated bread crumbs and when it is nicely browned take it up, and serve with some rich gravy (see Mock Venison).

Mutton—To Roast a Saddle of.

Take lean ham, truffles, green onions, parsley, thyme, and sweet herbs, all chopped small, with some spice, pepper and salt. Cover the mutton with them when the skin is taken off, put the skin over it neatly, and before roasting it tie over it white paper well buttered. When the meat is nearly done take off the paper, in order that the surface of the meat may be nicely browned.

Saddle of Mutton—Another Way.

Have a saddle weighing about fourteen pounds split up the rump, cut on each side of the back-bone in the inside of the saddle, take out the chop-bones, then the back-bone, commencing at the chop end, and going on till you come to the rump. Sprinkle the inside with pepper and salt, eord, but not tightly, so as to keep it in the form of the saddle, turn round the rump on each side, and fasten with a skewer; roast from two and a half to three hours, and serve with melted red currant jelly.

Mutton—Shank Jelly.

Scour and brush very clean 12 shanks of mutton, after soaking them in water for 4 hours. Simmer them gently for 5 hours in 3 quarts of water, putting with them 3 blades of mace, 2 onions, 20 Jamaica and 30 black peppercorns, some sweet herbs, and a crust of bread toasted brown; then strain off the liquor and keep it in a cool place. This is well adapted to delicate and debilitated persons.

Mutton—Boiled Shoulder of.

Put into cold water a shoulder of mutton, and boil it a quarter of an hour to the pound. Then dish, smothering it completely in Onion Sauce, made thus:

Onion Sauce.—Peel six large onions, and boil them in water till they are perfectly tender; take them out, and chop them up, not too fine; then put them in a saucepan with a pint of milk, two ounces of butter, and let them boil gently; add a little flour to thicken it, and a little pepper and salt. Serve over the mutton.

Shoulder of Mutton—To Dress a.

Have a small shoulder of mutton, bone it, roll it neatly, and bind it with tape. Put it on the fire with boiling water, and boil it two hours. Have a white sauce ready; have some pickles minced and add them to the sauce, with a teacupful of cream. Make it hot, stirring all the time, but do not let it boil. Cut off the tape, dish the mutton, and pour the sauce over it.

Shoulder of Mutton—To Roast.

Have the mutton cut large or small as you require it, bone it, sprinkle a little salt and pepper over it, roll it up, and bind it neatly with a piece of cord, rub it over with fresh drippings, put a piece of white paper round about it, and put it in a moderate oven. It will require three hours to cook. Half an hour before you dish it, take off the paper, let it brown a little, put in a little melted butter with flour until it froths up. Cut off the cord, and have a little gravy

and a tablespoonful of vinegar poured over it.

Mutton—Mock Venison.

Cut a hind quarter of fat mutton like a haunch of venison; get your butcher to let it lie in some sheep's blood five or six hours; then let it hang, in cold weather, for a month, or as long as it will keep good; then rub it over with some fresh butter, and scatter over it a mixture of salt and flour, butter a sheet of paper, and lay over it, and another over that, or some paste, and tie it round; if it is large it will take two hours and a half to roast. Before it is taken up, take off the paper or paste and baste it well with butter; flour it, and let it turn quickly so as to put a nice froth on it; serve it with good made gravy thus: 1 pint of stock gravy, 1 gill of port wine, a little pepper and salt, some catsup, a little thickening, and a spoonful of currant jelly—there should also be currant jelly on the table.

To Hash Mutton, Venison Fashion (Without Onions).

Take three pints of stock gravy, put it into a saucepan, and let it boil; then add a gill of port wine, some Cayenne pepper and salt, some flour to thicken, and a little bit of butter. Put in your meat cut into slices, and let it simmer four or five minutes. Do not let it boil or the meat will become hard; make a nice puff-paste, roll it out, then cut it into diamonds and fry them in boiling fat; then dish the hash, placing the sippets of puff paste round the dish. Currant jelly on table.

VEAL.

Veal—Joints of.

Veal should be delicately white, though it is often juicy and well-flavored when rather dark in color. Butchers, it is said, bleed calves purposely before killing them, with a view to make the flesh white, but this also make it dry and flavorless. On examining the loin, if the fat enveloping the kidney be white and firm-looking, the meat will probably be prime and recently killed. Veal will not keep so long as older meat, especially in hot or damp weather: when going, the fat becomes soft and moist, the meat flabby and spotted, and somewhat porous like sponge. Large, overgrown veal is inferior to small, delicate, yet fat veal. The meat is best when the calf is from three to four months old.

Veal is cut into neck (scrag end); neck (best end); loin (best end); (chump, or tail end); fillet (upper part of hind leg); hind knuckle, which joins the fillet; knuckle of fore leg; blade (bone of shoulder); breast (best end); and breast (brisket end). Veal is always in season, but is dear in winter and spring.

Veal—Bombarded.

Take a fillet of veal, from ten to twelve pounds weight, and cut out the bone neatly. Make a force-meat of one pound of veal parboiled, half a pound of ham minced, one teacupful of grated bread, a little lemon, thyme, and parsley; season with white pepper, Cayenne, and salt, mix well together, and moisten with two eggs. With this force-meat fill up the place where the bone was taken out. Make eight notches round the fillet three inches deep; fill one with force-meat, another with prepared spinach, another with prepared oysters, another

with chopped eggs, and so on till you have filled up all the notches; then bind all round with the caul, cord it neatly, and rub all over with butter or clarified dripping; put it in the oven until it becomes a beautiful light brown; take a saucepan that will hold it easily; make a sauce of three ounces of butter browned with a little flour; add a pint of good stock, one tablespoonful of ketchup, one of India soy, and one of lemon pickle. Put a plate in the bottom of the pan, place the veal on it, and let it simmer slowly till tender, which will be in about two hours. Before dishing, add some minced truffles or pickles. Dish on a very hot dish, cut the cord off gently, pour the sauce over, and garnish with sliced lemon or cucumbers.

Veal, Breast of—To Roast.

Notch a breast of veal at the joints, and take the blade-bone out, put in stuffing, sew it up, rub it over with good drippings, cover it with paper, and put it to the fire for two hours. Keep it at first a good distance from fire. When done take off the paper, and froth with butter and flour. Have a little butter melted, add some brown gravy, a tablespoonful of lemon pickle, boil the sauce, and pour it over the veal.

Veal, Breast of—Stewed White.

Cut a piece off each end; make a force-meat as follows: boil the sweetbread, cut it very small, some grated bread, a little beef suet, two eggs, a little milk, some nutmeg, salt and pepper; mix it well together, and stuff the thin part of the breast with some of it, the rest make up into little balls and fry; skewer the skin close down, flour, and boil it in a cloth in milk and water; make

gravy of the ends that were cut off, with half a pint of oysters, the juice of a lemon, and a piece of butter rolled in flour; when the veal is done, put it in the dish; garnish with the balls, and pour the sauce over it.

Veal Cake, No. 1.

Take a pound of cold roast veal, a slice of lean pork-ham, mince and pound them well together, with some onion, and a tea-cupful of bread crumbs soaked in a little milk. Beat up two eggs, mix them all together, season with white pepper and salt. Butter the mold and fill it; bake one hour in a quick oven, turn it out; when cold, cut it in slices, and garnish with parsley.

Veal Cake, No. 2.

Slice down three hard-boiled eggs, and with some of the slices garnish a well-buttered plain round mold. Put alternate layers of veal, ham, and hard-boiled eggs till the mold is nearly full, seasoning well with pepper and salt, and sprinkling in here and there a little finely-chopped parsley. Fill up the mould with nicely-flavored white stock, and allow all to bake for four hours in a steady, moderate oven. Let it stand till quite cold, then turn it out carefully and garnish with parsley.

Veal Chops, Breaded.

Take 6 or 7 handsomely cut chops, season them with salt and pepper, and put them into melted butter. When sufficiently soaked put them into beaten eggs, take them out, and roll each separately in bread crumbs; make the chops as round as you can with your hand, and lay them in a dish. When all are breaded broil them slowly over a moderate fire, that the bread may not be too highly colored. Serve with clear gravy.

Veal Collops.

Cut them about five inches long, not too broad, and not too thin; rub them with eggs, and scatter over them some crumbs of grated bread, parsley chopped, grated lemon peel, pepper, salt, and nutmeg, with a few leaves of thyme shredded small, set them before the fire in a Dutch oven; baste them, and when nicely brown turn them; thicken some rich gravy with some flour, add eat-soup, Cayenne, mushrooms, and hard yolks of eggs; boil this up and pour it over them.

Veal Cutlets, No. 1.

Have two pounds of veal sliced either from the loin or fillet, cut it into neat, square pieces, brush them over with beaten egg, and dip in bread crumbs. Have a saucepan with some boiling lard or dripping; place the cutlets on a wire drainer, and put them into the boiling fat for three minutes; then take them out and put them on a dish in the oven, to drain off the fat. Put two ounces of butter into a clean saucepan, let it boil, then dredge into it about one ounce and a half of flour; keep moving the pan over the fire till it gets brown, taking care not to let it burn. Add two ladlefuls of stock, and let it come to the boil; season with a little ketchup, white pepper, ground mace, salt, and the juice of half a lemon; put the cutlets into the sauce and simmer slowly for half an hour taking care they do not stick to the pan. If the sauce gets too thick, add a little more stock. Serve the cutlets round the dish, with the sauce in the center poured through a gravy strainer; garnish with sliced lemon, pickled beetroot and parsley. Serve as hot as possible.

Veal Cutlets, No. 2.

Have the veal cut from the same part, and sliced in a similar way. Brown about two ounces of butter in

a saucepan with one ounce and a half of flour, put in the cutlets and brown them carefully on both sides, then add about a pint of white stock, a little white pepper, two tablespoonfuls of ketchup, and one of spiced vinegar, put on the cover and simmer slowly for about an hour. Should the sauce get too thick, add a little more stock; if too thin, take off the cover and reduce by boiling. Dish the cutlets in a circle with green peas in the center and the sauce poured over them; garnish round the edge of the dish with sliced lemon, beetroot and parsley.

Veal Cutlets—Broiled.

Cut the pieces of veal of an equal thickness; dip them into beaten egg, and sprinkle them with chopped herbs, parsley, mushrooms, grated lemon peel, and crumbs of bread; broil them to a fine brown color. Make a sauce of butter and flour melted brown, moistened with veal gravy; put into it some button mushrooms, and pour the sauce hot over the cutlets.

Fillet of Veal—To Stew a.

Have a fillet of veal from eight to ten pounds' weight, and take out the bone. Have ready force-meat (see Force-Meat), or plain stuffing, and put it in where the bone was taken out, tie it up neatly with a cord, rub it over with fresh dripping, and put it to the fire. Let it brown for one hour, basting it well, after which put it in a saucepan with two pints of white stock, draw to the back of the stove, let it simmer for one hour, turn it over, add a tablespoonful of lemon pickle, and one of ketchup; give it another hour, when it will be done; then take it out, glaze, and keep it hot. Strain the stock, skim it, mix in a little flour with a tablespoonful of browning, and put it on the fire until it boils up. Dish the veal, cut off the cord, have ready force-meat balls, put them round the veal,

pour the sauce over it, and garnish with sliced cucumber or lemon.

Veal—Fricandeau of.

Cut a piece from the fillet of veal, the quantity you want, and lard the top and sides of it. Take a saucepan that will hold it, put some slices of bacon in the bottom, one pint of good white stock, two onions, two blades of mace, one carrot, one turnip, some parsley, and half of a lemon. Put in the veal with a piece of buttered paper over it, cover it closely, let it stew gently for three hours, then take it out and keep it hot in the oven, basting it frequently. Strain the sauce, skim off the fat, put it into a small saucepan, season with white pepper and salt, and reduce to a half glaze. Dish the fricandeau either with green peas round it, a puree of spinach, or a puree of tomatoes.

Veal—Galantine of.

Have a breast of veal from six to eight pounds, take out the bones, and sprinkle with pepper and salt. Have half a pound of pork ham, sliced very thin, pare off the skin, spread it over the veal, with a few pickled cucumbers and four dropped eggs. Put each egg in between the slices of ham, and cover all with mixed pickles, some sweet herbs, and parsley. Grate one nutmeg, two blades of mace, a little white pepper, Cayenne, and salt; mix these together and shake them all over the breast of veal; roll up neatly and cord it firmly. All this should be done the day before it is to be used. Put it into a flat deep dish, and, to keep it straight, put a heavy weight upon it all night. When wanted take it out; keep the sauce in the dish; rub it over with fresh drippings or butter, put a piece of white paper round it, and put it in the oven two hours. Baste it well; take off the paper, and have a saucepan

that will hold it with some boiling stock; lay the veal in it, put it over a slow fire, and let it simmer for an hour. An hour before dinner take it out and glaze it, and put it into the oven to keep it hot. Strain the stock in which you stewed the veal, and skim the fat off, mix in a little flour, adding the sauce you kept, and boil till it is the thickness of cream. Dish the veal, cut off the cord, pour the sauce over it, and garnish with sliced cucumber.

Veal Ham.

Take a leg of veal, cut ham-fashion, two ounces of saltpetre, one pound of bay, and one of common salt, and one ounce of juniper berries bruised; rub it well into the veal; lay the skinny side downwards at first, but let it be well rubbed and turned every day for a fortnight, and then let it be hung in wood-smoke for a fortnight. It may be boiled or parboiled and roasted.

Another.—Take the bones from a large fillet of veal, rub it over outside and inside with plenty of salt, let it lie for two days with a weight upon it, pound two pounds of bay salt, one ounce of allspice, and half an ounce of saltpetre; with this rub the ham every other day, turning it at the same time, and continuing the pressure for three weeks, then cord tightly and hang it up. When you wish to dress it, rub over with lard, and make a paste with three pounds of barley-meal or coarse flour, and one pound of dripping, in which roll the ham, put it in a quick oven, and bake for three hours, then take off the paste, and either glaze or brown it.

Jelly—Calves' Feet.

• For each foot take three pints of water, and boil it to half that quantity; then let it cool and skim off the fat. It must now be boiled for 2 or 3 minutes with the peel of a lemon and a little

spice, when it should be removed from the fire, strained through a flannel bag, and the juice of a lemon and a glass of wine added; when cooled a little, it may be put into glasses and forms.

Another.—Take eight calves' feet, boil them until the water becomes a good jelly, then add sugar, 1 pound; port wine, 2 pints; white of two eggs and shells. Boil for five minutes, and clarify.

Veal Loaf.

Three and one-half pounds of veal; cook until tender, chop fine; add five crackers, rolled fine; three slices of fat pork, chopped fine; salt and pepper to taste; two well-beaten eggs. Mix well together, adding enough of the water the meat was cooked in to moisten it well. Press it into a bread pan. Put hot water into another pan and set the pan of meat into it. Cook one and three-quarters hours in a slow oven. Occasionally pour on a little of the meat water. Let it remain in the pan until cold.

Loin of Veal—To Roast a.

Notch the back-bone of the veal, rub it with dripping, and take a piece of white paper and tie about it. Two hours before dinner put it in the oven, basting it frequently. You cannot baste it too much. When done, take off the paper, have a piece of bread toasted, dish the veal upon it, and serve with sauce.

Knuckle of Veal—Boiled.

Veal should be well boiled. A knuckle of six pounds will take nearly two hours. The neck must be also well boiled in a good deal of water—if it is boiled in a cloth, it will be whiter—pour over it parsley and butter, and serve it with tongue, bacon or pickled pork, or it may be stewed white. (See Breast.)

Veal Mince.

Cut some slices of cold veal, and mince them with a little boiled ham, season with white pepper and salt, some nutmeg, and grated lemon. Put it into a saucepan with a little white stock, stir it well, but do not let it boil, and let it simmer at the side of the fire until wanted. Add a teacupful of cream, and serve with poached eggs on the top.

Neck of Veal—Stewed with Celery.

Take the best end of the neck, put it into a saucepan with some boiling water, some salt, whole pepper, and cloves tied in a bit of muslin, an onion, a piece of lemon peel; stew this till tender; take out spice and peel, put in a little milk and flour mixed, some celery ready boiled and cut into lengths; boil it up, then serve!

Veal Olives.

Cut some slices of veal off the thick part of the fillet, three inches long and two inches broad. Have ready some force-meat (see Force-meat), and put a little upon each slice, roll them up neatly with a piece of tape, brown a piece of butter and flour, and brown the olives nicely, add a little boiling stock and the juice of half a lemon. Cover them closely, and let them simmer for one hour. Season with white pepper, salt, and a teaspoonful of lemon pickle, cut off the tape, dish them hot, and garnish with sliced lemon.

Veal—To Pot.

Take a part of a knuckle or fillet of veal, that has been stewed, or bake it on purpose for potting; beat it to a paste, with butter, salt, white pepper, and mace, pounded; press it down in pots, and pour over it clarified butter.

Another.—Cut one pound and a half from a fillet of veal in thin slices, and put it in a saucepan, with a quart of good white stock, some white pepper, the rind of a lemon, and salt; cover it closely, let it stew for three-quarters of an hour, then strain it, and pick out the pieces of veal. Boil three eggs hard, slice them, and have some slices of dressed ham, some pickled beetroot, cut with a paste-cutter, and some curled parsley boiled. Take a large mold, wet it with water, trim the veal neatly; lay some slices in the bottom, some slices of ham, some beetroot, and eggs, with little sprigs of parsley here and there; then veal, ham, beetroot, eggs, and so on alternately, until you fill up the mold. Then skim the stock which you strained, put it on the fire, make it hot, season with salt and white pepper, and when it is nearly cold, pour it into the mold to the top. When it is quite cold, it will be firm; turn it out, and garnish with parsley and sliced beetroot.

Veal Pot Pie.

Cut the veal into small pieces, cover with cold water, and let it boil slowly until the meat is tender. Drop small lumps of biscuit dough into the kettle. Be sure that there is plenty of water over the meat when the dumplings are put in. Cover the kettle and let them cook for about twenty minutes.

Veal Dressed with Rice.

Take a pound of rice; put it to a quart of veal broth, some mace, and a little salt; stew it over a very slow fire till it is thick, but at the bottom of the stew-pan, beat up the yolk of six eggs, and stir it into it; then take a dish, butter it, lay some of the rice at the bottom, and put upon it a neck or breast of veal,

half roast it, cut into five or six pieces; lay the veal close together, in the middle, and cover it over with rice; wash the rice over with the yolk of eggs, and bake it an hour and a half; then open the top, and pour into it some good thick gravy; squeeze in the juice of an orange.

Veal—To Roast.

To roast veal will take a quarter of an hour to a pound. Paper the fat of the loin and fillet; stuff the fillet and shoulder with the following ingredients—A quarter of a pound of suet, chopped fine, parsley and sweet herbs, chopped, grated bread and lemon peel, pepper, salt, nutmeg, and yolk of an egg; butter may supply the want of suet; roast the breast with the caul on till it is almost done, then take it off, flour it, and baste it; veal requires to be more done than beef. For sauce, salad, pickles, potatoes, broccoli, cucumbers, raw or stewed, French beans, peas, cauliflowers, celery, raw or stewed.

Another.—Season a breast of veal with pepper and salt; skewer the sweet-bread firmly in its place; flour, the meat and roast it slowly for about four hours in a moderate oven; it should be of a fine brown, but not dry; baste it with butter. When done, put the gravy in a saucepan, add a piece of butter rolled in brown flour and if there should not be quite enough gravy, add a little more water, with pepper and salt to taste. The gravy should be brown.

Shape of Veal—To Make a.

Take two pounds of the fillet, stew it in a little stock for one hour along with one pound of lean ham, then take both out; when cold, trim and cut into thin slices about an inch and a half long, boil three eggs hard and cut them through the centre, and the white parts into rings, to

fill which have beetroot boiled and cut in slices to the size. Have mixed pickles, such as onions, gherkins, etc., and parsley. Take a large tin mold, and place the white rings with the beetroot, yolks, and pickles tastefully in the bottom, then put the veal, ham, pickles, and eggs alternately until the mold is filled. Have the stock in which the veal was stewed seasoned and reduced to fill the mold. When cold, turn out, serve for breakfast, luncheon, or supper, and garnish with savory jelly and parsley.

Veal Souffle.

Two cupfuls of finely minced cold veal, one of bread crumbs dry and fine, one cupful of boiling milk, one teaspoonful of butter, one slice of cold boiled ham, one egg beaten very light, a pinch of soda, dissolved in milk. Pepper and salt to taste. Soak the crumbs in the boiling milk, stir in the butter and let the mixture cool. Stir in the meat first when the bread is nearly cold, season, and then put in the beaten eggs. Beat all up well and pour into a well-greased pudding dish. Set in a hot oven, covered, and bake half an hour, uncover, brown lightly, and serve.

Veal—Stewed.

Divide into portions part of a breast of veal, and fry it to a nice brown in butter. Put into a saucepan a quart of green peas, together with onions and parsley. When they are tender add some veal gravy, and put in the pieces of veal already fried and stew the whole gently. Season with salt, pepper, and a teaspoonful of powdered sugar.

To Make a White or Veal Stock.

Take all the veal bones you may have, together with chicken, fowls, turkeys, or any white meat, and put

them in a stock-pot; let them boil for ten or twelve hours; crusts of dry bread and egg shells, in fact the same as directed for the stock-pot, with the exception that it must be all white meats. When boiled the time above-mentioned, strain it off, and let it stand until it is cold, then take the fat off the top, turn it into another dish, and scrape the sediment off, when, if done as directed, you will find it a perfectly clear jelly; this may be used as the ground work of all kinds of sauces for veal.

Sweet-Breads—Plain.

Have three or four sweet-breads, scald and wash them, boil them for half an hour, then take them out, trim when cold, and slice them. Beat one egg, season with white pepper and nutmeg, draw them through the egg, and roll them in bread crumbs, fry a nice light brown, put them before the fire to drain, and keep them hot. Have a dish of spinach, or boiled whole rice, place it in the centre of the dish and the sweet-breads around it, or you may dish them on a napkin.

Sweet-Breads—No. 2.

Wash and stew them as in the above. When cold have a white sauce ready; when it boils, put in the sweet-breads, keep them hot, put a potato border round the dish, and place the sweet-breads in the center.

Sweet-Breads—No. 3.

Blanch as the above. When cold, trim them, but do not slice them; lard and stew them in a little stock for half an hour. Take them out and glaze them well, keep them hot, and dish them upon stewed peas or celery sauce.

Calf's Head—To Bone a.

Take a good large head, scald and clean it, taking care not to break the skin, cut up the under part of the head by the windpipe, separate

the skin from the cheek bones gently, taking care not to make holes in the skin. Take out the tongue, boil for half an hour, and skin it. Have one pound of sausage meat prepared, the same of veal minced with a quarter of a pound of ham, chestnuts minced may be added according to taste, season with white pepper, nutmeg, and salt, mix all together with one breakfast-cupful of grated bread and moisten with two eggs. Place the tongue in the centre, and the stuffing around it, then form the head into its original shape, fasten with a skewer, cord neatly, and fringe the ears with scissors. When you wish to dress it, place it in the oven for an hour, basting it well, then take a piece of butter, and brown with flour in a large sauce pan, add a little boiling stock, then put a small plate in the bottom of the pan, to prevent the head from sticking, lay in the head, and stew slowly for two hours. Season with white pepper, ketchup, and a tablespoonful of vinegar. Have a border of stuffed tomatoes round the dish on which it is going to table, cut off the cord, pour the sauce over, and garnish the head with slices of lemon.

Calf's Head—To Dress a.

Scald and clean the head, lay it in water for an hour or two, wash it and put it into a pot with water, skim it when it comes to the boil, let it boil slowly for one hour, then take it out, and be careful not to break the skin. Let the water remain upon the fire to reduce it. When the head is cold, cut the meat off both sides of it, skin the tongue, and take out the brains. Put the bones in the water in which you boiled the head, and boil it until you have reduced the stock to two pints, then strain it. When the head is wanted, trim it neatly, cut the ears

with a pair of scissors in strips, but do not cut them off, brush over with beaten egg, and shake bread crumbs mixed with flour over it. Put a piece of butter in a saucepan that will hold the head (it is much better, as well as easier, to brown the head by frying it a minute or two in boiling fat before putting it into the sauce), put in the skin side of the head and brown it well, turn it over, and when the other side is done, add the half of the stock you have strained. Shake the saucepan well and when it boils cover it close and let it simmer for half an hour. Have ready one dozen force-meat balls, and add them to it. Have the tongue hot and glazed, season with pepper and salt, and a little Cayenne, one tablespoonful of browning sauce, and one glass of sherry wine. Have a border of fried croutons of bread round the dish, dish the head with the tongue placed in the centre, and pour the sauce with the force-meat balls round it. Serve the brain cakes on a separate dish. The head may be dressed in a different manner by cutting it in pieces two inches square, with the tongue split in two and laid on the top

Calf's Head—Plain Boiled.

Split it up, wash it well, take out the brains, and blanch them for two or three hours. Put on the head in a saucepan with water and salt, let it boil for one hour and twenty minutes. Parboil the brains, and rub them through a sieve, have some parsley minced; melt a piece of butter with a little cream, and add to it the brains, season with white pepper and salt; shake, and make it hot. Dish the head, draw out the bones, skin the tongue, and pour the sauce over it.

Calves' Liver and Bacon.

Cut it into slices, and fry it in good beef dripping or butter; let the pan be half full, and put the liver in when it boils, which is when it has done hissing; have some rashers of toasted bacon and lay around it, with some parsley crisped. Always lay the bacon in boiling water before it is either boiled, fried, or toasted, as it takes out the salt and makes it tender. Sauce, made thus:—A pint of veal stock, a little catsup, some pepper and salt, a bit of butter, and a little flour to thicken; a little poured over the liver, the rest in a sauce-pan.

PORK:

Pork—Directions How to Choose.

Pork, if it is measly, is very dangerous to eat; it may be easily seen, the fat being full of little kernels; if it is young, the lean will break if pinched, and the skin will dent by nipping it with the fingers; the fat will be soft and pulpy, like lard; if the rind is thick, rough, and cannot be nipped with the fingers, it is old; if the flesh is cool and smooth, it is fresh; if it is clammy, it is tainted; it will be worse at the knuckle than at any other part.

Pork—Different Pieces or Joints of.

The spring and fore-loin, the spare-rib and griskin, are cut from the fore-quarter; the spring is generally salted and boiled, and the fore-loin roasted; but some like them both roasted.

Hind quarter consists only of the leg and the hind-loin.

The leg is either boiled or roasted, and the hind-loin is generally roasted.

The head, tongue, ear, and feet.

The entrails are called the haslet, which contains the liver, crow, sweet-

bread, kidneys, and skirts. There are, besides the haslet, the chitterlings, and guts, which, when cleaned, make sausages, and white and black puddings.

Pork is cut into leg, hand or shoulder; hind-loin; fore-loin; belly part; spare-rib; neck; and head. Pork is in season nearly all the year round, but is better relished in winter than in summer.

Bacon—to Cure.

Rub the flitches with common salt exceedingly well; let them lie so that the brine can run from them; in about a week put them into a tub for the purpose, rubbing off all the salt; rub the flitches with one pound of saltpetre, pounded; the next day rub them with salt dry and hot; let them lie a week, often rubbing them; then turn them; add more hot salt; let them lie three weeks or a month in all, rubbing them well; then dry them. The hog may be either scalded or singed, but singed is the best.

Bacon—to Choose.

The fat will feel oily, and look white, and the lean of a good color, and will stick close to the bone, if it is good; but if there are yellow streaks in the lean, it is or will be rusty very soon. If the rind is thin, it is young; but, on the contrary, if it is thick, it is old.

Ham—to Choose.

Hams with short shanks are best. Put a knife under the bone, if it comes out clean and smells well, it is good; but if it is daubed and smeared, and has a disagreeable smell, it is bad.

Ham—Baked.

Soak a ham in water over night, trim it and cover it all over with a thick crust of flour and water. Bake slowly eight hours, remove the crust and skin; cover the top with fine cracker crumbs slightly sweetened. Place in the oven until the crumbs are brown: when cold cut into thin slices.

Hams—to Boil.

Steep it all night in soft water; a large one should simmer three hours, and boil gently two; a small one should simmer two hours and boil about one and a half; pull off the skin, rub it over with yolk of egg; cover with bread crumbs and set in the oven till of a nice light brown.

Ham—Deviled.

Take slices of cold boiled ham; make a dressing of one heaping teaspoonful of mustard, to which add a teaspoonful of lemon juice and a scant one of curry powder and a pinch of Cayenne pepper. This should be mixed well together and spread over the slices of ham. Broil about three minutes and serve on toast dressed with sliced lemon.

Ham—Roasted.

Take off the skin and steep it three hours in warm water; then take it out and pour over it a bottle of Madeira, and let it soak all night. Before it is baked, put a paste all over it as for venison; pour what is left of the Madeira into the dripping pan, with some more if it is a large ham, and baste it with the wine while it is roasting. It must at first be put in a moderate oven and then the heat gradually increased. When nearly done take off the paste, baste it well with the wine, and cover it over with bread crumbs or shredded parsley; and make it of a fine light brown.

Hams—to Fry.

Rub the slices of ham with a little syrup or a small sprinkle of sugar the night before. In the morning put on in a frying-pan and cover tightly for three minutes. Take off the cover, turn the slices and steam again for three minutes. Then uncover and fry until brown.

Ham—to Cure.

For each ham of twelve pounds' weight: Two pounds of common salt,

2 ounces of saltpetre, $\frac{1}{4}$ pound of bay salt, $\frac{1}{4}$ pound of coarse sugar.

This should be reduced to the finest powder. Rub the hams well with it; a woman's hands are not often heavy enough to do this thoroughly. Then place them in a deep pan, and add a wineglassful of good vinegar. Turn the hams every day; for the first three or four days rub them well with the brine; after that time it will suffice to ladle it over the meat with a wooden or iron spoon. They should remain three weeks in pickle. When taken from it wipe them well, put them in bags of brown paper and then smoke them with wood smoke for three weeks. Most grocers, dealers in hams, and others, who are particular in their meat, usually take the precaution to case each one, after it is smoked, in canvas, for the purpose of defending it from the attacks of the little insect, the *dermestes lardarius*, which, by laying its eggs in it, soon fills it with its larvæ or maggots. This troublesome and expensive process may be altogether superseded by the use of pyroligneous acid. With a painter's brush, dipped in the liquid, one man, in the course of a day, may effectually secure two hundred hams from all danger. Care should be taken to spread the liquid into all the cracks, etc., of the under surface. This method is especially adapted to the preservation of hams in hot climates.

Hams—To Cure.

Take $2\frac{1}{2}$ pounds sugar, 7 pounds coarse salt, 2 oz. saltpetre and 4 gallons water, boil together and put on cool to 100 pounds of meat. Let the meat lie in the pickle eight weeks.

Another.—To a cask of hams, say from 25 to 30, after having packed them closely and sprinkled them slightly with salt, I let them lie thus for 3 days; then make a brine sufficient to cover them, by putting

salt into clear water, making it strong enough to bear up a sound egg or potato. Then add $\frac{1}{2}$ lb. of saltpetre, and a gallon of molasses; let them lie in the brine for 6 weeks—they are then exactly right. Then take them up and let them drain; then while damp rub the flesh side and the end of the leg with finely pulverized, black, red, or cayenne pepper; let it be as fine as dust, and dust every part of the flesh side, then hang them up and smoke. You may leave them hanging in the smoke-house or other cool place where the rats cannot reach them, as they are perfectly safe from all insects.

Pork Hams—To Cure.

For each ham pound two ounces of saltpetre, one pound of bay salt, and rub it into the hams daily until you have rubbed it all in. Lay them in a pickling jar, pour one pound and a half of syrup to each ham, turn them every two days, basting them with the liquor for four weeks. Take them out, wash them with cold water, pipe them, and sew them up in a piece of scrim. Smoke them with hardwood and sawdust, or peats, for three or four days. If these instructions are attended to, the hams will keep for years.

Hams (Smoked)—To Keep.

Make sacks of coarse cotton cloth, large enough to hold one ham, and fill in with chopped hay all around about two inches thick. The hay prevents the grease from coming in contact with the cloth and keeps all insects from the meat. Hang in the smoke house, or other dry, cool place, and they will keep a long time.

Baked Pork and Beans.

Soak a quart of beans over night in plenty of water. Cover with fresh water, to which add a half teaspoonful of soda. Let it come to a boil.

Put the beans with a pound of salt pork into a kettle and cover with fresh water. Boil until the beans begin to be tender. Put the beans into a baking dish with the pork. Into the water put two tablespoonfuls of molasses. Pour enough over the beans to moisten thoroughly, keeping the remainder to pour over as the beans require it. Cover and bake slowly for six hours.

Pork—To Boil.

Pork should be very well boiled; a leg of pork of six pounds will take about two hours; the hand must be boiled till very tender. Serve it with pease-pudding, savoy, or any green.

Chine of Pork—To Stuff a.

Take a chine of pork that has hung four or five days, make some holes in the lean, and stuff it with a little of the fat leaf, chopped very small, some parsley, thyme, a little sage and eschalot, cut very fine, seasoned with pepper, salt, and nutmeg; it must be stuffed pretty thick; have some good gravy in the dish. For Sauce—apple-sauce and potatoes.

Pork Chops.

Take a loin of pork and divide it into chops, strew some parsley and thyme cut small, some pepper, salt, and grated bread over them; broil a fine brown; have ready some good gravy, a spoonful of ready-made mustard, two eschalots shredded small; boil these together over the fire, thicken with a piece of butter rolled in flour, and a little vinegar, if agreeable. Put the chops into a hot dish, and pour the sauce over them.

Pork Chops and Tomato Gravy.

Rub the chops with powdered sage. Put them in a frying pan and cook thoroughly. Lay them on a hot dish.

Add a cupful of hot water to the gravy and a large ripe tomato cut fine; stew five minutes, add pepper and salt and thicken with flour to proper consistency. Pour over the chops and serve hot with mashed potatoes. Strain before thickening if liked very smooth.

Roast Pork.

It should be well done; a leg of twelve pounds will take three hours. Stuff the knuckle with chopped sage and onion, pepper and salt; serve it with gravy in the dish. Very young pork may be skinned and dressed in quarters. For sauce—potatoes and apple-sauce.

Leg of Pork—To Pickle a.

Pound half an ounce of saltpetre, one pound and a half of salt, and four ounces of sugar, rub it into the ham, and turn it daily for fourteen days, when it will be ready for use. But if the weather is hot, in place of rubbing it dry make a pickle of salt and water, strong enough to carry an egg, and pour it over the pork. When you are going to boil it, wash it with cold water, and put it on the fire with as much cold water as will cover it. When it boils, skim and draw it to the back of the range and boil slowly but constantly for two hours. Serve with pease-pudding or green peas.

Leg of Pork—To Roast a.

Have the roast neatly cut, which should be of very young pork; rub over the skin with salad oil, put a piece of white paper over it, and put it to roast in a moderate oven for one hour, then increase heat, and give it two hours more. Half an hour before dinner take the paper off, so that it may become a nice brown. Serve with apple sauce.

Loin of Pork—To Roast a.

Notch it at the joints, cut the skin in strips, and rub it over with a bit of butter and some sage leaves rubbed

into a powder. Rub it into the pork before putting it into the oven; give it two hours' roasting, and serve with apple sauce.

Boiled Sausages.

Pierce each one with a fork to prevent bursting. Put them in a frying-pan; pour cold water over them, just enough to cover; add a table-spoonful of vinegar to the water. Let them simmer about half an hour, or until the water is evaporated. Serve with freshly grated horseradish.

Pork Sausages.

Two pounds of lean pork, three pounds of eline fat, free from skin, some sage leaves chopped, pounded cloves, pepper, and salt; beat it fine, and either press it into pots and roll it when it is used, or put it into skins.

German Sausages.

Boil a belly-piece of pork till tender; put with it some hog's blood, some rice flour, or other flour, to thicken it; season it well with pepper, what salt is necessary, and pounded cloves; put this into the great skins, which fill about half full; boil them; when enough they will swim; the pork is best to be out of the pickle for hours.

Spanish Sausages.

Parboil a gammon of bacon, or part of a lean ham, and mince it with an equal quantity of fine lard, and some boiled garlic, sage, thyme, pepper, nutmeg, and salt; mix them with the yolks of eggs, and as much wine as will make it pretty thick; fill them in skins as big as four common sausages; hang them three or four days in a chimney; eat them with oil and vinegar, or boil them.

Pig's Head—An Excellent Way to Dress a.

Boil a head out of the pickle (tongue pickle) till it will bone; take the skin off the whole, chop the meat quickly, while it is hot; season it with black and Jamaica pepper, nutmeg, and a

little salt, if necessary; press it into a pot; the skin put top and bottom; put on a weight; turn it out when cold; put it into a pickle made with the liquor it was boiled in, vinegar, and salt, if necessary; boil and skim it; it must stand until cold.

Pig's Head—To Roast.

Bone it, put in stuffing, the same as used for a sucking pig, roll it up, and tie with cord. Baste it well, and give it three hours in a hot oven. Serve with apple sauce.

Sucking Pigs.

Sucking pigs are best at about three weeks old, and they should be cooked as soon as possible after being killed.

Sucking Pig—To Roast a.

Take a pig three weeks old, stick it above the breast-bone, rub it over with beaten resin, let it lie for a few minutes, then put it into a pan of scalding water, and when you find that the hair will come off easily, take it out. The hair should come off without a knife; but if it should not, repeat the scalding. Wash the pig well in cold water, and take out all the entrails. Wash it again in cold water, and dry it thoroughly, outside and inside. Have a stuffing of grated bread, minced suet, one onion, and a bit of sage; season with pepper, salt, and Cayenne, put it into the inside, and sew it up. Have the white of an egg well beaten, and brush the pig over with it, put it to roast for nearly two hours, and, when done, cut off the head, divide it, and take out the brains. Cut the body up the middle. Have a little minced sage, boil a little butter and the gravy which ran from the pig, mix them all together, and make them hot. Dish the pig, and serve the sauce in a sauce-tureen; or you may send it to the table whole, by skewering it so as to stand upon its feet, with a roasted apple in its mouth. Serve with apple sauce.

POULTRY AND GAME.

Poultry and Game—To Choose.

Venison.—When good, the fat is clean, bright, and of considerable thickness. To know when it is necessary to cook it, a knife must be plunged into the haunch; and from the smell the cook must determine whether to dress it at once, or to keep it a little longer. It should be dusted with ginger and pepper, as this will keep away the flies.

Turkey.—In choosing poultry, the age of the bird is the chief point to be attended to. An old turkey has rough and reddish legs; a young one smooth and black. Fresh killed, the eyes are full and clear, the feet moist and the wattles bright red. When it has been kept too long, the parts about the vent have a greenish appearance.

Common Domestic Fowls, when young, have the legs and combs smooth; when old these parts are rough, and on the breast long hairs are found when the feathers are plucked off; these hairs must be removed by singeing. Fowls and chickens should be plump on the breast, fat on the back, and white-legged.

Geese.—The bills and feet are red when old, yellow when young. Fresh killed, the feet are pliable, but they get stiff when the birds are kept too long. Geese are called green when they are only two or three months old. If over a twelvemonth old they are not fit to bring to table.

Ducks.—Choose them with supple feet and hard plump breasts. Tame ducks have yellow feet, wild ones red.

Pigeons are very indifferent food when they are kept too long. Suppleness of the feet shows them to be young; the flesh is flaccid when they are getting bad from keeping. Tame

pigeons are larger than wild pigeons, but not so large as the wood-pigeon.

Rabbits, when old, have the haunches thick, the ears dry and tough, and the claws blunt and ragged. A young rabbit has claws smooth and sharp, ears that easily tear, and a narrow cleft in the lip.

Partridges, when young, have yellowish legs and dark-colored bills. If held up by the lower bill, it should break. Old partridges are very indifferent eating.

Woodcock, Snipe and Quail, when old, have the feet thick and hard; when these are soft and tender they are both young and fresh killed. When their bills become moist, and their throats muddy, they have been too long killed.

To Choose Plover.—When new, they are limber-footed; when fat, they feel hard at the vent; when lean, they feel thin in the vent; when stale, they are dry-footed. These birds will keep a long time sweet. There are three sorts of plovers—the grey, green, and bastard plover, or lapwing.

Fowls—Choice of.

If a cock, choose with short spurs, observing that they have not been pared or cut; if a hen, her comb and legs must be smooth; when old they are rough, and on the breast long hairs are found instead of feathers; smell them whether they are fresh, and feel whether the breast-bone is well-covered; if not, they have probably died from disease.

A good eapon has a thick belly and a large rump; there is a particular fatness at its breast, and the comb is very pale.

Fowl or Chicken in Aspic Jelly, No. 1.

Clean and bone a young fowl or chicken in the usual way, stuff it

with force-meat, boil it for thirty-five minutes, and let it stand till cold. Have a large mold, pour into it two or three tablespoonfuls of aspic jelly; let it set, then ornament in various designs with pickled beetroot, hard-boiled whites of eggs, cucumbers and parsley, add more jelly, and allow it to set, then place in the fowl, and fill up to the top with jelly and ornaments. When wanted, turn out and garnish with aspic jelly in various colors. A turkey may be done in the same way.

Fowl or Chicken in Aspic Jelly, No. 2.

Line a plain round mould with aspic jelly, running the cold jelly round the sides of the mold till it is well coated. Fill up the center with lettuce and other salad vegetables shredded small, putting pieces of cold chicken among the salad. Pour in some mayonnaise, and cover with cold aspic jelly that is just beginning to set. Turn out carefully when quite firm and set, and garnish with chopped salad and sliced tomatoes. Cold salmon or other cold fish may be used in the same way.

Baked Chicken.

Split a chicken down the back, season well with salt and pepper, cover well with melted butter and dredge thickly on both sides with fine, dry bread crumbs. Cook in a hot oven for about half an hour. A cream sauce can be poured over this.

Chickens—To Boil.

A large one takes twenty minutes; a very small one, fifteen. For sauce—parsley and butter or lemon sauce.

Chicken—Boiled.

Cut it down the back, pepper and salt it, pour over it white mushroom sauce, or melted butter, with pickled mushrooms.

Chicken—Boneless.

Fricassee your chicken, taking care to brown the skin nicely; season to taste. When done set by to cool; then remove all the bones; put back into the dish in which it was cooked. Take a chopping knife and chop finely, leaving in all the oil of the fowl; if not enough of that, add a piece of butter. Then pack closely in a dish, as you wish it to go to the table, and when your friends come to taste it, their approbation will more than repay you for the little extra trouble it has taken to prepare it.

Fowls—How to Cook Old.

Prepare as for roasting; then boil three hours in a covered pot, with one quart of water, to which add two tablespoonfuls of vinegar; after which put into a pan in a hot oven for about one hour to brown. The liquor in the pot is to be prepared for gravy; should the water boil away too much, more must be added. The result is, the meat is as tender as young chicken, and some think richer and better.

Chicken Cutlets.

Cook half a cupful of flour in one-third of a cupful of butter, add a cupful of stock, one-third of a cupful of cream, a beaten egg and a pint of chopped chicken; season with salt and pepper. When cold form into cutlets, dip in egg and bread or cracker crumbs. Fry until a light brown.

Chickens—Curry of.

Cut two chickens as for fricassee, wash them in two or three waters, put them into a saucepan with as much water as will cover them; sprinkle over them a large spoonful of salt, let them boil till tender, covered closely; skim them well when they first begin to boil; take up the chickens, put the liquor into a basin, put a half a pound of butter into a pan, brown it a little, put to it two cloves of garlic, a large onion

sliced; let these fry till brown, shaking the pan; put in the chickens; scatter over them two spoonfuls of curry powder, cover the pan close; let the chickens cook till brown, often shaking the pan; put in the liquor the chickens were boiled in; let all stew till they are tender; if acid is agreeable, when the chickens are taken off the fire, squeeze in the juice of a lemon; put half a pound of rice, picked and washed in salt and water, into two quarts of boiling water; boil it briskly for twenty minutes, strain it through a collander, shake it into a plate, but do not touch it with the hand, nor a spoon; serve it with the curry in a separate dish.

Chicken—To Fricasse.

Boil a chicken; joint it; lay it in a saucepan with a piece of butter the size of an egg, a tablespoonful of flour, a little mace or nutmeg, white pepper, and salt. Add a pint of cream, and let it boil up once. Serve hot on toast.

Chickens—To Fry.

Cut up the chickens and lay them in cold water to extract the blood. Wipe them dry, season with pepper and salt, and dredge them with flour. Fry in lard to a rich brown; take them out and keep them near the fire; skim the gravy carefully in which the chickens have been fried, mix with it $\frac{1}{2}$ a pint of cream; season with mace, pepper, salt and parsley.

Chicken—Fried.

Put the chicken on in cold water and boil until it is tender. Take it out carefully and roll in beaten egg and cracker crumbs which have been salted. Fry in butter until a nice brown.

Chicken—Jelly.

Take 1 large fowl, put it into a saucepan with 2 quarts of water, 1 large onion, 1 blade of mace, and 1 teaspoonful of salt; boil all till reduced to 3 pints, then strain it, and let it stand till the next day; then take off the fat very

clean, take the whites of 6 eggs, half an ounce of isinglass, the juice of 1 or 2 lemons, beat them well together, and boil it till the scum rises to the top. Let it stand a few minutes, then strain it through a jelly-bag. The above is a very strengthening preparation, and may be taken cold or hot, as best suits the palate.

Chicken Maitre d'Hotel.

Cut the meat from the breast of a dry-picked, two-days'-killed spring chicken; put into the chafing dish a heaping teaspoonful of butter, when hot add the two pieces of breast; saute a light brown on each side four minutes; season with salt and white pepper, squeeze over the meat the juice of a lemon, sprinkle over all a little chopped parsley and serve.

Maryland Chicken.

Dress, clean and cut up two chickens, sprinkle with salt and pepper, dip in flour, egg and crumbs; put in a well-greased dripping-pan, and bake twenty minutes in a hot oven, basting after first five minutes of cooking with one-third cup of melted butter. Arrange on platter and pour over two cups of cream sauce.

Chicken Panada.

Skin a fowl; cut it in pieces, leaving the breast whole; boil it in 3 pints of water till perfectly tender, pick off the meat, and pound it finely in a mortar, and mix it with the liquor it was boiled in; rub it through a sieve, and season it with salt.

Chicken Pie.

Cover a medium-sized chicken with about three pints of water (hot). Simmer for about an hour and a half. Take out the chicken and let this water boil rapidly for fifteen minutes; skim off the fat. Put three tablespoonfuls of butter in a frying-pan, and when hot add three tablespoonfuls of flour; stir until

smooth, but not brown, then add the water in which the chicken has been boiled. Cook ten minutes and add two well-beaten eggs; season with salt and pepper. Put this and the chicken in a pudding dish; put on a top of pastry; bake one hour.

Pressed Chicken.

Take two good sized chickens, boil them in just enough water to cover half their depth, add an onion cut in two and a stalk of celery. Let the chicken boil until the flesh almost drops from the bones. When done put the chicken in a chopping bowl and chop, but not fine. Let the liquor in which the chicken has been boiled get cool. Season the chicken with salt and pepper. Pour a little of the liquor in a bowl, then fill with the chicken. Press it down hard with the hands, then cover with a plate that is smaller around than the bowl and put a heavy weight on it. Let it remain this way all day. Slice in thin slices.

Chickens—To Roast.

A large one will take half an hour, a small one twenty minutes. For sauce—gravy, parsley and butter, or mushroom sauce.

Fowl and Chickens—To Roast.

Put them down to a good fire, and baste them well with butter. A fowl will require nearly an hour to roast, and a chicken about a $\frac{1}{4}$ of an hour or 20 minutes. For the fowl let a gravy be made of the neck and gizzard, and when strained put in a spoonful of browning. Serve the chicken with parsley and butter.

Chicken Souffle.

One pint of cooked chicken finely chopped, one pint of cream sauce, four eggs, one teaspoonful of chopped parsley, one teaspoonful of onion juice, salt and pepper. Stir the chicken and seasoning into the sauce. Cook ten minutes. Add the yolks of the eggs,

well beaten, and set away to cool. When cold add the whites, beaten to a stiff froth. Turn into a buttered dish and bake half an hour. This must be served immediately. Any kind of meat can be used.

Southern Chicken.

Cut the chicken into small pieces, roll in beaten egg and cracker crumbs. Fry in boiling lard until a nice brown. Pour over the chicken a cream sauce made with a pint of milk or cream seasoned with butter, pepper and salt, and thickened with a little flour.

Chicken—Supreme of.

Chop fine the breast of a raw chicken, and beat thoroughly into it, one at a time, four eggs and $\frac{1}{2}$ pint of cream; season with salt and pepper. Butter small moulds and fill with the chicken, and bake standing in hot water and covered with buttered paper, for twenty minutes. Do not let the water boil. Turn from the moulds and serve hot, with cream or tomato sauce.

To Dress Wild Ducks, Widgeon, or Teal to Perfection.

Half roast them; when they come to table, slice the breast, scatter on pepper and salt, pour on a little port wine, and squeeze the juice of a lemon over; put some gravy to this, set the plate on a lamp, cut up the bird, let it remain over the lamp till done, turning it.

Fowl—To Boil.

A large one will be boiled in half an hour; boil it in a pot by itself; skim it very clean; it will be better than if boiled in a cloth; pour some melted butter over the breast; serve it with tongue, bacon, or pickled pork; cabbage, savoy, broccoli, any greens or carrots, and oyster sauce, white celery sauce, or white sauce.

Fowl—To Broil.

Slit the fowl down the back, and score to the bone all the thicker parts,

as the thighs and breast, in order to have it all equally done. Brush over the inside and the braees scored with catsup and pepper, and broil over a clear fire. A sauce should be made of butter and flour melted brown, into which, when taken from the fire, should be put capers or button mushrooms.

Fowls--To Roast by an Open Fire.

When the fowls are laid to the fire, singe them with some white paper, baste them with butter, then dredge over them some flour; when the smoke begins to draw to the fire, baste and dredge them over again; let the fire be brisk, and send them to table with a good froth. A large fowl will take three quarters of an hour, a small one twenty minutes. For sauce—gravy, egg-sauce, mushrooms, and white or brown celery sauce.

Fowl—Stewed with Onion.

Wash it clean, dry and truss it as for boiling; put a little pepper and salt into it, and rub it with butter; butter a saucepan; put the fowl in the pan with a pint of veal stock or water, seasoned with pepper and salt. Turn it while stewing, and while quite tender add 12 small onions, split. Stew all together for $\frac{1}{2}$ an hour. A young fowl will take 1 hour, an old one 3 hours to stew.

Goose—To Roast by an Open Fire.

Presuming that the bird is carefully plucked, singed, washed, and dried, put into it a seasoning of onions, sage, pepper and salt, fastening tightly the neck and rump. Put it at first at a distance from the fire; paper the breast-bone; baste well, and when the breast is rising take the paper off. Let good gravy be sent in the dish. Serve with potatoes, gravy, and apple sauce.

Goose—Boiled.

Having singed the goose, pour over it a quart of boiling milk; let it lie all

night in the milk, after which take it out and dry it well; stuff it with sage and onion, cut small; sew up the openings, and hang it up for a day. Boil for one hour, and serve with onion sauce.

To Stew Larks, or any Other Small Birds.

Take some larks; when they are drawn, put them into a saucepan with some melted butter or bacon, an onion stuck with cloves, some mushrooms and some livers of fowls; toss them all together with a little flour, moisten them with some gravy, and when a little wasted, beat an egg in a little milk, with some parsley cut small in it; pour it into a saucepan, stir it round, but do not let it boil; squeeze a lemon into it.

Partridges—To Roast.

Rightly to look well there should be a leash (3 birds) in the dish; pluck, singe, draw and truss them; roast them for about 20 minutes; baste them with butter, and when the gravy begins to run from them you may safely assume that the partridges are done; place them in a dish, together with bread crumbs, fried nicely brown and arranged in small heaps. Gravy should be served in a tureen apart.

Partridges—To Broil.

Cut them in half, dip them in a butter previously melted, and cover them thickly with crumbs of bread. A quarter of an hour ought to be sufficient to cook them over a clear fire.

Partridge Pie.

Two braces of partridges are required to make a handsome pie. Truss them as for boiling; pound in a mortar the livers of the birds, $\frac{1}{4}$ of a lb. of fat bacon, and some shredded parsley; lay part of this force-meat at the bottom of a raised crust; put in the partridges, add the remainder of the force-meat and a few mushrooms; put some

slices of bacon fat on the top, cover with a lid of crust, and bake it for 2½ hours. Before serving the pie remove the lid, take out the bacon, and add sufficient rich gravy and orange juice. Partridge pie may also be made in a dish in the ordinary way.

Pigeons—Stewed.

Make a seasoning of pepper, salt, cloves, mace, sweet herbs and a piece of butter rolled in flour, and put it into them, closing the opening. Half roast them; then stew them in good gravy, with whole pepper, mace, lemon, sweet herbs, and a small onion. Take them out when done, strain the liquor, skim it, and thicken it with a piece of butter rolled in flour; then put in the pigeons with some pickled mushrooms, and stew them for five minutes. Pour the sauce over them in the dish.

Plovers—The General Way of Dressing.

Green plovers roast like a woodcock without drawing. Grey plovers should be stewed. Make a force-meat with the yolks of two hard eggs, bruised, some marrow cut fine, artichoke bottoms cut small, and sweet herbs seasoned with pepper, salt and nutmeg; stuff the birds, and put them into a saucepan with some good gravy (just enough to cover them), a glass of sherry, and a blade of mace; cover them close, and let them stew very softly till tender; then take up the plover, lay them in a dish, keep them hot; put a piece of butter rolled in flour to thicken the sauce; let it boil till smooth; squeeze into it a little lemon, skin it clean, and pour it over them.

Rabbits—To Cook.

After skinning they are thoroughly freed from blood with cold water. They are left over night in a weak salt water, which is poured off in the morning, and new salt water added, in which they stand until ready for cooking.

This water is made just sufficiently salt to fit the flesh for eating. They are then boiled until tender, when the meat is taken out, and flour and butter, first rubbed together, is stirred in and well peppered, and the whole poured over toast, upon which the meat is laid. A few sprigs of parsley added improve the taste for many persons.

Barbecued Rabbit—An Old Virginia Recipe.

Take a large fat rabbit; rub all over with melted butter, and sprinkle with pepper and salt. Lay on a broiling iron, set over a hot fire, and turn until brown on both sides. When well done put in a baking-pan, spread with butter and set in the oven for ten minutes. Mix two tablespoonfuls of vinegar, a teaspoonful of mustard, the juice of half a lemon, and two teaspoonfuls of currant jelly together. Set over the fire to heat, season with salt and a dash of Cayenne; pour over the rabbit and serve.

Snipe—Roasted by an Open Fire.

Do not draw them, but spit on a bird-spit; flour and baste well with butter; prepare a slice of toasted bread, lay it in a plate under the birds; roast for about 30 minutes; place them on the toast; butter, garnish with slices of lemon and parsley, and serve.

Another. — Twenty minutes will roast snipe; put under while roasting, a toast, to receive the trail, which lay under them in the dish. For sauce —butter and gravy.

Turkey—Stuffing for.

Take some bread crumbs and turn on just enough hot water to soften them; put in a piece of butter, not melted, the of size of an hen's egg, and a spoonful pulverized sage, a teaspoonful of ground pepper, and a teaspoonful of salt; there may be some of the bread crumbs that need to be chopped; then mix thoroughly and stuff your turkey.

Turkey—To Bake.

Let the turkey be picked, singed and washed and wiped dry, inside and out; joint only to the first joints in the legs, and cut some of the neck off if it is all bloody; then cut 12 small, gashes in the fleshy parts of the body on the outside and in different parts of the turkey, and press 1 whole oyster in each gash; then close the skin and flesh over each oyster as tightly as possible; then stuff your turkey, leaving a little room for the stuffing to swell.

When stuffed sew it up with a stout cord, rub over lightly with flour,

sprinkle a little salt and pepper on it, put some water in your dripping-pan, put in your turkey, baste it often with its own drippings; bake to a nice brown; thicken your gravy with a little flour and water. Be sure and keep the bottom of the dripping-pan covered with water, or it will burn the gravy and make it bitter.

Venison—Joints of.

Venison is cut into haunch, neck; shoulder and breast; Doe venison is best in January, October, November, and December, and buck venison in June, July, August and September.

MEAT AND FISH SAUCES.**Garnishes.**

Parsley is the most common garnish for all kinds of cold meat, poultry, fish, butter, cheese, etc. Horseradish is the garnish for roast beef, and for fish; slices of lemon are sometimes laid alternately with the horseradish.

Slices of lemon for boiled fowl, turkey, and fish, and for roast veal and calf's head.

Carrot in slices for boiled beef, hot or cold.

Barberries, fresh or preserved, for game.

Red beetroot sliced for cold meat, boiled beef, and salt fish.

Fried sausages, force-meat balls, are placed round turkey, capon, or fowl.

Lobster coral and parsley round boiled fish.

Fennel for mackerel and salmon, either fresh or pickled.

Currant jelly for game, also for custard or bread pudding.

Seville orange or lemon in slices for wild ducks, teal, etc.

Mint, either with or without parsley, for roast lamb, either hot or cold.

Pickled gherkins, capers, or onions, for some kinds of boiled meat and stews.

Ketchup—Camp.

Anchovies, 4 ozs.; mix with beer, 2 quarts; white wine, 1 quart; boil a short time, add peeled shallots, 3 ozs.; black pepper, mace, nutmegs, and ginger, of each, $\frac{1}{2}$ oz., macerate for 14 days, and bottle.

Another.—Vinegar, 2 pints; walnut ketchup, 1 pint; mushroom ketchup, 3 ozs.; garlic, 4 cloves; Cayenne pods, $\frac{1}{2}$ oz.; soy, 2 ozs.; wine, 4 ozs.; 3 anchovies; 1 oz. salt. Macerate together three weeks, and bottle.

Another.—Vinegar, 1 pint; walnut ketchup, 4 ozs.; soy, 2 ozs.; 12 chopped anchovies; 2 cloves of garlic, and Cayenne pods, 1 drachm; macerate three weeks and bottle.

Currant Catsup.

Nice fully ripe currants, 4 lbs.; sugar, $1\frac{1}{2}$ lbs.; cinnamon, ground, 1 tablespoon; salt with ground cloves and pepper, of each 1 teaspoon; vinegar, 1 pt. Stew the currants and sugar until quite thick; then add the other ingredients, and bottle for use.

Gooseberry Catsup.

Four quarts gooseberries with stems and blossoms trimmed off with scissors; four pounds of brown sugar, one ounce of stick cinnamon, one teaspoon-

ful of ground cloves (whole ones will do) and one pint of vinegar. Boil berries, spice and fruit three hours; add vinegar; let come to a boil and can.

Mushroom Catsup.

Gather mushrooms in dry weather; take the large, fully grown flaps, and see that they are free from insects and earth. Add to each peck of mushrooms a half lb. of salt; break them up into a large earthenware pan, scatter the salt over them, and let them stand for three days, stirring and mashing them up each day, then strain out all the juice. To every quart of juice put $\frac{1}{2}$ an oz. of whole black pepper, $\frac{1}{2}$ an oz. of bruised ginger, $\frac{1}{4}$ of an oz. of allspice, $\frac{1}{4}$ of an oz. of Cayenne, and the same quantity of pounded mace. Put all the spices with the juice into a large earthenware jar (standing in a pot of water), and boil for 3 hours; or the catsup may be boiled in a preserving pan. Let the spices remain in it when bottled. Never use mushrooms unless you know them to be safe.

Another.—Have the mushrooms gathered in the morning before the sun is on them. Break them in small pieces, put them in a large dish, and sprinkle a good deal of salt on them; let them lie for four days, turning them daily, then lay them on a sieve, or put them in a thin bag, and let them run all night until the liquor is all from them. Take the mushrooms out of the bag, put them on in a little cold water, let them boil slowly for about half an hour, then drain, and add this second liquor to the first. Put the liquor in a saucepan, with plenty of mixed spices, let it boil for five minutes, run it through a piece of muslin into a basin, and, when cold, bottle up, seal, and keep it in a dry place.

Oyster Catsup.

Take fine fresh oysters, rinse them in their own liquor, then pound them in a marble mortar, and to a pint of oysters put a pint of cherry wine; boil it up, add an ounce of salt, 2 drachms of Cayenne pepper, let it boil up once again, rub it through a sieve; when cold, put it in bottles and cork and seal them.

Tomato Ketchup.

Scald ripe tomatoes, and remove the skin. Let them stand a day, covered with salt; strain thoroughly to remove the seeds. To every 2 quarts of the liquor add 3 oz. of cloves, 2 of black pepper, 2 grated nutmegs, a little Cayenne pepper, and salt. Boil all together for $\frac{1}{2}$ an hour, then let the mixture cool and settle; add a pint of the best cider vinegar; bottle, cork tightly, and seal. Keep in a cool place.

Tomato Ketchup.

This is made from tomatoes in the same way as the preceding, adding a small quantity of very strong Chili vinegar.

Walnut Ketchup.

The juice of green tender walnuts expressed, 1 gallon; boil and skim till clear; add 2 lbs. of anchovies; shallots, 2 lbs.; pepper, mace, and cloves, of each 1 oz.; and a sliced clove of garlic. Simmer 15 minutes, add salt to taste, strain, and when cool, bottle. Let it stand 12 months before using.

Another.—Tender walnuts bruised, $\frac{1}{2}$ bushel; add, to each gallon of juice, red wine, 1 quart; anchovies and bay salt, of each 4 ozs.; allspice, 1 oz.; black pepper, 2 oz.; cloves and mace, of each, 2 drachms; a little ginger, and sliced horseradish. Simmer slowly until enough, and when cold, bottle.

Another. — Green walnut shells bruised, 4 parts; salt, 1 part; mix, and in 7 days express the liquor. To each

gallon, add allspice, 4 ozs.; ginger, 3 ozs.; long pepper, 2 ozs.; cloves and mace, of each 1 oz. Simmer for 30 minutes, cool, and bottle.

Walnut Catsup.

Walnut-shell juice, 3 gallons; salt, 7 lbs.; ginger, 8 oz.; garlic, 8 oz.; horseradish, 8 oz.; essence of anchovies, 1 quart. Mix.

Spiced Currants.

Three quarts of currants, one quart of sugar, one-half pint of vinegar, one tablespoonful of cloves, one tablespoonful of cinnamon. Measure the currants after they have been picked. Put all together in a kettle, stir frequently, and when it begins to boil, skim carefully. Cook half an hour, counting from the time it begins to boil. Put in small jars or tumblers. This is to be served with meats.

Gravy—Brown.

Three onions, sliced and fried in butter to a nice brown; toast a large, thin slice of bread a considerable time until very hard and of a deep brown. Take these, with any piece of meat, bone, etc., and some herbs, and set them on the fire, with water according to judgment, and stew down until a rich gravy is produced. Season, strain and cool.

Horseradish—To Have in Keeping.

Grate a sufficient quantity during the season, while it is green, put it in bottles, fill up with strong vinegar, cork them tight, and set them in a cool place.

Horseradish Powder.

The time to make this is during November and December: slice the radish the thickness of a nickel, and lay it to dry very gradually in a Dutch oven (a strong heat soon evaporates its flavor); when dry enough, pound it and bottle it.

Horseradish Vinegar.

Pour a quart of best vinegar on three ounces of scraped horseradish, an ounce of minced shallot, and one drachm of Cayenne; let it stand a week, and you will have an excellent relish for cold beef, salads, etc., costing but little. Horseradish is in the highest perfection about November.

Mint Vinegar.

Place in a wide-mouthed bottle, fresh, nice, clean mint leaves enough to fill it loosely; then fill up the bottle with good vinegar; and after it has been corked close for two or three weeks, pour it off clear into another bottle, and keep well corked for use. Serve with lamb when mint cannot be obtained.

Curry Powder.

Take two ounces of turmeric, six ounces of coriander seed, half-ounce of powdered ginger, two drachms of cinnamon, 6 drachms of Cayenne pepper, one drachm of mace and cloves, powdered fine, two drachms of pimento, four drachms of nutmeg, and an ounce and a half of fennel seed; powder finely, mix, dry, and bottle for use.

Another Curry Powder.—Take of coriander seed and turmeric, each six drachms; black pepper, four drachms; fennel seed and powdered ginger, each two drachms; Cayenne pepper, half a drachm; powder finely, mix, dry, and bottle for use.

Indian Curry Powder.—Turmeric, four ounces; coriander seeds, eleven ounces; Cayenne, half an ounce; black pepper, five ounces; pimento, two ounces; cloves, half an ounce; cinnamon, three ounces; ginger, two ounces; cummin seed, three ounces; shallots, one ounce. All these ingredients should be of a fine quality, and recently ground or powdered.

Fried Apples.

Cut slices one-half inch thick across the apple without removing skin or core, or cut the apple in quarters and remove the core. Saute the apples in butter or drippings until tender and light brown, but not soft enough to lose form. Serve on the same dish with pork chops.

Mustards.

To Prepare Ordinary Mustard.—Stir gradually 1 pint of good white wine into 8 ounces of ground mustard seed, add a pinch of pulverized cloves, and let the whole boil over a moderate coal fire. Then add a small lump of white sugar and let the mixture boil up once more.

Another.—Pour $\frac{1}{2}$ a pint of boiling wine or apple vinegar over 8 ounces of ground mustard seed in an earthen pot, stir the mixture thoroughly, then add some cold vinegar, and let the pot stand over night in a warm place. The next morning add $\frac{1}{2}$ pound of sugar, $\frac{3}{4}$ drachm of pulverized cinnamon, $\frac{1}{2}$ drachm of pulverized cloves, $1\frac{1}{4}$ drachms of Jamaica pepper, some cardamom, nutmeg, half the rind of a lemon, and the necessary quantity of vinegar. The mustard is now ready and is kept in pots tied up with bladder.

Another.—Pound in a mortar the flesh of a salt herring and 2 ounces of capers to a paste, and mix this with 2 ounces of pulverized white sugar and 13 ounces of ground mustard seed; then pour $1\frac{3}{4}$ pints of boiling wine vinegar over it, stir, and let the whole stand near a fire for several hours. Finally, add $\frac{3}{4}$ pint of boiling vinegar, stir thoroughly, and pour the mustard into glass bottles.

Another.—Mix 8 ounces of ground mustard seed with $1\frac{1}{2}$ pints of good, cold vinegar, heat the mixture over a moderate fire for 1 hour, add 1 drachm

of ground Jamaica pepper, and when cold keep it in well-closed jars.

Another.—Cut up a medium-sized onion, pour $1\frac{1}{2}$ pints of good vinegar over it, let it stand for a few days, strain the vinegar off and pour it over 8 ounces of mustard seed, and let this stand for 12 hours. The mustard seed is then ground and mixed with the following ingredients: $\frac{1}{2}$ drachm of finely-powdered clover, $\frac{1}{4}$ drachm of pulverized cardamoms, a like quantity of grated nutmeg, and 1 ounce of pulverized white sugar.

French.—Salt, $1\frac{1}{4}$ lbs.; scraped horseradish, 1 lb.; garlic, 2 cloves; boiling vinegar, 2 gallons; macerate in a covered vessel for 24 hours; strain, and add sufficient flour of mustard.

Frankfort.—Mix 1 pound of white mustard seed, ground, a like quantity of brown mustard seed, 8 ounces of pulverized loaf sugar, 1 ounce of pulverized cloves, 2 ounces of allspice, and compound the mixture with white wine or wine vinegar.

Wine.—Compound very fine black mustard in powder with $\frac{1}{8}$ of its quantity of must, which has been previously boiled down to a thickly-fluid paste in a tin boiler.

Aromatic.—Cut up 8 ounces each of parsley, chervil (*Chacrophylum sativum*), and celery, steep them for 2 weeks in wood vinegar, then grind the mixture, and add 10 quarts of ground mustard seed and 8 ounces of pulverized sea salt. On the other hand, pulverize and mix 1 pound each of cinnamon, cloves, nutmegs, and allspice, sift the powder and mix it with the mustard, together with 40 drops of essence of thyme and 30 drops each of essence of cinnamon and essence of tarragon, diluted with some vinegar poured from the first mixture.

English Mustard consists of 9 pounds of ground mustard seed, 8 ounces of

wheat flour, $1\frac{3}{4}$ pounds of common salt, $2\frac{3}{4}$ ounces of Cayenne pepper, and as much water and vinegar as required.

Black Mustard Powder.—Mix 10 parts of ground black mustard and $\frac{1}{8}$ of roeambole rubbed very fine, and add 1–20 of salt.

Compound Mustard Powder. Mix 10 parts of ground white mustard and $\frac{1}{6}$ of roeambole rubbed very fine.

Mustard Powder, Compound English.—Pulverize and mix 2 pounds of mustard seed, $1\frac{1}{2}$ ounces of dried roeambole, $\frac{1}{2}$ ounce each of marjoram, thyme, and garden sage, $\frac{1}{4}$ ounce each of tarragon and cinnamon, $\frac{3}{4}$ drachm each of ginger, cloves, and fennel seed, and 8 ounces of dried common salt, and keep the powder in well-closed bottles.

Mustard Powder, Compound Black. Pulverize and mix 20 parts of ground black mustard seed, 3 of common salt, 1 each of tarragon, thyme and roeambole, and 4 of pulverized sugar.

Sauces.

Apple.—Take six good baking apples, peel and cut them in four, take out the core; put them either in a brass or enameled pan, with a little water; let them boil to a pulp, and press through a sieve. Return to the pan with one ounce of butter, two ounces of sugar and a little lemon juice; stir well, and serve hot in a sauce-tureen. This is always served with goose and roasted pork.

Baked Apple.—Pare, core and quarter apples to fill an earthen crock or deep pudding dish, taking care to use apples of uniform degree of hardness and pieces of the same size. For two quarts of fruit thus prepared, add a cup of water, and, if the apples are sour, a cup of sugar. Cover closely, and bake in a moderate oven several hours, or until of a dark red color. Sweet apples and quinces, in the proportion of two parts of apple to one of quince, baked in this way, are also

good. Cut the apples into quarters, but slice the quinces much thinner as they are more difficult to cook. Put a layer of quince on the bottom of the dish, and alternate with layers of apple until the dish is full. Add cold water to half cover the fruit, and stew in the oven, well covered, without stirring, until tender. Fruit cooked in this way may be canned while hot and kept for a long period.

Green Apple.—For sour green apples it is best to use a sharp silver knife to prevent discoloration. Cut the apples in quarters, remove the cores and skin, and drop them as fast as pared into a bowl of cold water. Skim them out into a granite kettle with a large bottom, so that there will not be much depth to the apples. Add boiling water enough to show among the pieces, cover tightly, and cook quickly. Shake the pan occasionally, and as soon as the fruit is soft mash it with a silver fork, add sugar to taste, and when it is dissolved remove from the fire. Serve hot or cold. This sauce should be free from lumps, light colored and not very sweet. A pinch of salt may be an improvement.

Apple Sauce for Goose or Pork.—Pare, quarter and core six tart apples. Put them in a granite saucepan, cover with water, boil until tender, and press through a collander; add a teaspoonful of butter, a dash of nutmeg or cinnamon, and sugar to taste, being sure to keep the sauce tart.

Bread Sauce.—Boil in a pint of water a thick slice of bread, a minced onion, and some white pepper. When the onion is tender pour off the water, pick out the pepper-corns, and rub the bread through the sieve, then put it into a pan with half a pint of cream, a pat of butter, and a little salt, stir till it boils, and serve.

Bread Sauce, No. 2.—Boil one pint of good milk, pour it over a breakfast-

cupful of bread crumbs, in a basin, and cover it with a plate; let it stand one hour, and press through a sieve. When wanted, put it into a small saucepan; if too thick add a little cream to it, a little nutmeg, two drops of the essence of cloves, and a little salt; let it boil one minute, and serve in a sauce-tureen.

Bread Sauce, No. 3.—Boil for ten minutes in a pint of white stock one onion, with two cloves stuck in it, and one blade of mace. Strain this into a basin on a breakfast-cupful of bread crumbs, cover with a plate and let it stand. When wanted, put it on in a clean saucepan with one gill of cream, a little white pepper and salt, stir till it boils, and serve in a sauce-tureen. Bread sauce is served with game and sometimes with roast fowls.

Browned Bread Crumbs for Serving with Game.—Put some grated loaf bread in the oven on a baking dish till it becomes a fine light-brown color, then take it out and rub in a little bit of butter. Serve hot on a napkin.

Plain Brown Sauce.—Put two ounces of butter into a clean saucepan, melt it, and let it boil, then dredge in about an ounce and a half of flour, moving the pan very carefully, as it has a strong tendency to burn. When it is a dark brown color add two breakfast-cupfuls of stock, and stir with a wooden spoon. If too thick, add a little more stock; season with a little catsup, black pepper, and salt, and let it simmer slowly for ten minutes. If wanted very smooth pour it through a gravy strainer.

Celery Sauce.—Wash two large heads of celery, cut the white parts in half-inch lengths, put them on in an enameled pan with equal measure of milk and white stock, and boil till tender. Put on in a saucepan two ounces of butter with the

same of flour, let it melt, stirring it well with a wooden spoon, drain the celery, add the milk and stock to the butter and flour, and continue stirring; let it boil about ten minutes; if too thick add a little more white stock, then add the pieces of celery, half a gill of cream, and season with white pepper, salt, and grated nutmeg, after which it must not be allowed to boil. This sauce is very much liked with boiled or braised turkey, and the quantity given here will be found sufficient for one.

Caper Sauce.—Make a plain butter sauce, add some French capers and a little vinegar; stir, and make it hot. Serve over the boiled mutton or in a sauce-tureen.

Chutney.—Pare and core sour apples. Then take of these apples, tomatoes, brown sugar, and best raisins, each 8 oz.; salt, 4 oz.; red peppers (Chilies) and powdered ginger, 2 oz. each; garlic and small onions, 1 oz. each. Pound the whole well, and add 3 quarts of best cider or wine vinegar—or vinegar made from beer—and 1 quart of lemon juice. Let it stand in the vessel a month, but give it a good shake daily. Then pour off the clear liquid and bottle it. The residue may be used in aid of a second batch of sauce, or, rubbed up into a very smooth paste, may form a constituent of French mustard.

Cranberry Sauce.—To stew cranberries, a quart of berries, a pint of brown sugar, and a pint of water; place all in a porcelain kettle, cover closely, and allow them to cook 8 minutes after coming to a boil, without stirring; remove from the fire, and empty into an earthen dish to cool.

Cucumber.—Have one or two green cucumbers, put them into boiling water with a little salt and vinegar,

let them boil for ten minutes, take them out, peel them, and cut them in slices, about half an inch thick. Take a little white stock, a pat of butter, a tablespoonful of lemon pickle or vinegar, and a tablespoonful of sugar; put them in a saucepan on the fire, and shake it until it becomes hot, then add the cucumbers and a little white pepper. This sauce is served in a sauce-tureen with lamb cutlets.

Curry.—Fry the meat partially in salt pork fat. Remove the meat and to a pound allow a pint of water and two teaspoonfuls of curry powder. Boil these together a few minutes, then add the meat and cook until done. Thicken the gravy with a teaspoonful of flour before serving. Serve with boiled rice.

Fennel.—Boil a bunch of fennel and parsley, chop it small, stir it into some melted butter.

Fish Sauce.

Take $\frac{1}{2}$ a pint of milk and cream together, 2 eggs well beaten, salt, a little pepper, and part of the juice of a lemon. Put it over the fire and stir it constantly until it begins to thicken.

Fowls—Sauce for.

An excellent white sauce for fowls may be made of 2 oz. of butter, 2 small onions, 1 carrot, $\frac{1}{2}$ a teacupful of flour, 1 pint of new milk, salt and pepper to taste. Cut up the onions and carrots very small, and put them into a stew-pan with the butter; simmer them until the butter is nearly dried up; then stir in the flour and add the milk. Boil the whole gently until it thickens, strain it, season with salt and Cayenne, and serve.

Roast Meat Gravy.

When the roast is done, take the dripping-pan and pour off the fat, leaving the savory jelly, which has come from the meat in the process of roasting, in the bottom. Pour into

this jelly enough of boiling water with a little salt to make sufficient gravy for the size of the roast, mix well, let it come to the boil, and pour over the meat. To most people, this is the most acceptable gravy with roast beef or mutton, and ought always to be served with it, even when other sauces and accompaniments are served.

Horseradish Sauce for Cold Meat.

Mix a teaspoonful of mustard, two tablespoonfuls of cream, and one of Chili vinegar; add a little salt, a tablespoonful of grated horseradish, and a teaspoonful of brown sugar. Mix all together, and serve in a sauce-tureen.

Lobster Sauce.

Take a lobster which has a good deal of spawn, pull the meat to pieces with a fork: do not chop it; bruise it and the spawn with the back of a spoon; break the shell, boil it in a little water to give it a color, strain it off; melt some butter in it very smooth, with a little horseradish, mix the body of the lobster well with the butter, then add the meat, and give it a boil, with a spoonful of catsup, or gravy, if agreeable. Some like it with only plain butter.

Lyonnais Sauce.

Peel and cut into small dice one large Portugal onion, put it on in an enameled pan with one ounce of butter, and let it simmer till soft, then add one gill of tomato pulp, a piece of glaze about the size of a walnut, one dessertspoonful of vinegar, half a teaspoonful of vinegar, a little black pepper, and salt; let it boil up and serve. This is a very good sauce for mutton cutlets.

Mayonnaise Sauce.

Separate very carefully the yolks of two eggs, drop them into a clean basin, and with a wooden spoon stir

for a few seconds; then take the salad oil bottle, and, placing your thumb over the top, pour in very slowly about half a pint of oil, stirring constantly till it becomes thick and smooth; season with pepper, salt, vinegar and mustard. When you begin to mix the oil with the yolks, the oil should be added in drops at short intervals. This sauce is used for dressing cold salmon and lobster salads.

Mint Sauce.

Take twelve stalks of green mint; pick off the leaves, wash well; mince them very small, take a small teacupful of vinegar, add two tablespoonfuls of raw sugar, and mix them well to dissolve the sugar. Serve in a saucetureen, with roast lamb, either hot or cold.

Mint Sauce for Roast Lamb.

Take nine or ten stalks of ¹/₂ green mint, chop it very small, a pint of common vinegar, and three tablespoonfuls of moist sugar. It will be all the better if made a day or two before it is used.

Piquant Sauce.

Chop together one tablespoonful of capers, the same of pickled gherkins, and one small onion; put them on in an enameled pan with two tablespoonfuls of vinegar, and let simmer for about ten minutes, or till the vinegar is reduced to half the quantity. Brown one ounce of butter with one ounce of flour, add about half a pint of stock, and let it boil slowly for ten minutes, then add the chopped capers, etc., season, if necessary, with pepper and salt, and if liked one teaspoonful of anchovy sauce. This sauce is suitable either for meat or fish; but, if for fish, it is better to prepare a plain buttersauce instead of the brown, to which add the piquant mixture.

Sauce Royal for Plum Pudding.

Beat four ounces of fresh butter to a cream, add four ounces of fine-ground sugar, and beat a little longer, then stir in gradually one glass of brandy and the same of sherry. The mixing must be done very carefully, adding the brandy and sherry at first in drops at short intervals, so as to make it blend with the butter. This sauce should be made shortly before it is wanted, and served cold in a saucetureen, or in little pat, son a plate, like butter.

Salad Sauce.

Have two hard boiled eggs, bruise the yolks till very smooth, add a tablespoonful of mustard, mix them with a teaspoonful of mustard, one of salt, and one of black pepper, a teaspoonful of Cayenne sauce, a tablespoonful of vinegar, one of the essence of anchovies, and a small teacupful of cream.

Sharp Sauce for Venison.

Brown one ounce of butter with one ounce of flour in a saucepan, add two ounces of ham chopped small, a few sprigs of parsley one onion sliced, one bay leaf and a little thyme; let all simmer together for ten minutes, then add three gills of good brown soup or stock, half a gill of vinegar, and a little black pepper and salt, after which let it boil for ten minutes, stirring occasionally to prevent burning. Pass through a gravy strainer into a clean saucepan, add one glass of port wine, one dessertspoonful of red currant jelly, and stir till the jelly dissolves and the sauce just comes to the boil.

Sauce—Shirley.

Twelve good-sized, ripe tomatoes; two bell peppers (large ones); two onions (may omit these, and like the sauce better—consult your own taste). Scald and skin the tomatoes; chop the peppers and onions (if used) very fine. Then add one cup of vinegar and one

fourth of a cup of sugar, and boil two hours; then put in another cup of vinegar and boil one hour—or until the mixture does not separate. Then stir in one teaspoonful of cloves, one dessertspoonful of cinnamon, and a teaspoonful of pimento (allspice).

Tomato Sauce.

Put on the fire, in an enameled pan, one tablespoonful of vinegar, and let it boil till reduced to one half the quantity, then add half a pint of tomato pulp, one ounce of meat or chicken glaze, a pinch of sugar, and the same of salt if necessary; let it simmer for two or three minutes, and serve.

Another.—Take four ripe tomatoes, slice them, squeeze out the seeds and water, and put them with salt, Cayenne pepper, pounded mace, and allspice, into a saucepan without any water, and let them simmer slowly in their own liquor till quite dissolved; pass them through a fine sieve, beat them up with a bit of butter and serve over mutton chops.

Tomato Sauce, to Keep.—Take six pounds of ripe tomatoes, crush them, and sprinkle with salt; let them remain a day or two, then boil and pass through a coarse sieve or colander. Put into the liquor half a teaspoonful of Cayenne, and a dessertspoonful each of cloves, pepper, ginger and cinnamon; boil it one-third away, and bottle tight. It should be shaken before being used.

White Sauce.

To make white sauce for a boiled turkey, take one breakfastcupful of cream, mix in two tablespoonfuls of flour till very smooth, a little pounded mace, nutmeg, and salt; add a breakfastcupful of the water in which the turkey was boiled, put it on the fire, stirring all the time till it boils and becomes very thick and smooth; then pour it over the turkey. This sauce

may be served with boiled fowl or chickens.

Another.—Put a dessertspoonful of flour and a little salt in a basin, mix gradually with a quarter of a pint of cold water, turn it into a small, clean saucepan, boil for two minutes, stirring well, then add an ounce and a half of butter cut small, and stir till it is quite melted. In mixing water and flour to form melted butter, a small hole should be made in the middle and the water then poured into this hole. Then stir round from the center instead of from the side of the basin, and the butter will by this means be free from lumps.

Another.—An anchovy, a glass of sherry, a bit of horseradish, two or three blades of mace, an onion stuck with cloves, a piece of lemon peel, a quarter of a pint of water or more; simmer these till reduced to the quantity wanted; strain it, put in two spoonfuls of milk, a large piece of butter, with some flour mixed well in it; keep stirring it till it boils; add a little catsup, squeeze in some lemon juice when off the fire; more wine may be added if agreeable.

Sauce—Worcestershire.

All the English sauces in popular use are founded upon walnut catsup—that is of English walnuts—or upon mushroom catsup. To make a catsup of walnuts, the green shells are taken in these proportions: 2 gals. of walnut juice, 5 lbs. salt, mixed and bruised, and allowed to lie a week; the liquor is then pressed out, and to every gallon is added 4 ounces of allspice, 3 ounces of ginger, and of pepper and cloves, 2 ounces each, all bruised. The whole is then simmered for thirty minutes, and is then set aside to clear. This is the catsup. To make a sauce of this similar to Worcestershire, take 1 gal. port wine, $\frac{3}{4}$ gal. catsup, 2 lbs. anchovies, with their liquor, 8 lemons,

48 shallots or small onions, scraped horse-radish, $1\frac{3}{4}$ lbs., mace 1 ounce, Cayenne 2 ounces, mustard 8 ounces. Boil the whole gently, and then strain and bottle.

Worcestershire Sauce (Lee and Perrins).

White vinegar, 15 gals.; walnut catsup, 10 gals.; Madeira wine, 5 gals.; mushroom catsup, 10 gals.; table salt, 25 lbs.; Canton soy, 4 gals.; powdered capsicum, 2 lbs.; powdered allspice, 1 lb.; coriander, powdered, 1 lb.; cloves, mace and cinnamon, of each $\frac{1}{2}$ lb.; asafetida, $\frac{1}{4}$ lb., dissolved in brandy, 1 gal. Twenty pounds of hogs' liver is boiled for twelve hours with ten gallons of water, renewing the water from time to time. Take out the liver, chop

it, mix with water, and work it through a sieve: mix with the sauce.

Wow-Wow Sauce.

This is excellent for stewed or boiled beef. Chop parsley fine; take two or three pickled cucumbers, or walnuts, and divide into small squares, and set them by in readiness; put into a saucepan a piece of butter as big as an egg; when it is melted, stir into it a tablespoonful of fine flour, and half-a-pint of the broth of the beef; add a tablespoonful of vinegar, one of mushroom ketchup, or port wine, or both, and a tablespoonful of made mustard; simmer together till it is as thick as you wish, put in the parsley and pickles to get warm, and pour it over the beef, or serve it in a sauce-tureen.

ENTREES AND MADE DISHES.

Aspic Jelly.

Put on in an enameled pan one pint of good white stock with half an ounce of gelatine previously soaked in a very little cold water, the white and shell of one egg slightly beaten, a little ground white pepper and salt, one bay-leaf, a few sweet herbs, one tablespoonful of Tarragon vinegar, and a little infusion of hay saffron, just sufficient to give it a bright amber color. Stir with a switch over a stove or slow fire until it boils; cease stirring and let boil for three minutes, then cover, and set aside a little back from the fire for about ten minutes, after which pour gently through a jelly bag, whence it should come quite transparent. Should the stock be weak a little more gelatine must be used; but the jelly will be more agreeable to the taste, as well as superior in quality, if made of strong stock, requiring as little gelatine as possible, to give it the necessary stiffness.

Fish Balls.

Soak over night three-fourths pound of boned cod, shred the fish (uncooked) till it is fine. Add a dozen medium sized potatoes freshly boiled, mashed and rubbed through a sieve, two beaten eggs, teaspoonful of butter, a little hot milk and a pinch of white pepper. Mold into round balls and fry in very hot fat.

Meat Balls.

Add to one small bowlful of finely chopped meat a cupful of fine bread or cracker crumbs, a little chopped onion and celery, a little gravy mixed with the crumbs to moisten them. Season with pepper and salt, shape into cakes and fry light brown. Serve hot with baked potato.

Rice Balls.

Boil the rice; it is best boiled in milk in a double boiler. Wet small custard cups in cold water and fill them with the hot rice. Let them stand in a warm place until serving time, then

turn them out on a flat dish and pour custard over them.

Fried Bananas.

Strip off the skins; cut each banana into three slices and flour well. Drop into frying-pan of hot butter or deep fat, drain dry and serve hot.

Beef Rissoles.

Mince some cold roast beef fine, add rather more than one-half as much bread crumbs as meat, a little minced lemon peel and chopped parsley, with salt, pepper, and sweet herbs minced, to taste. Make into a paste with two or more eggs, according to the quantity of meat; roll up into balls, and fry a rich brown; thicken a little good brown gravy; add to it a dessert spoonful of Worcester sauce, and pour it round the rissoles in a very hot dish.

A Great Breakfast Dish.

Chop fine any kind of cooked lean meat, season with salt and pepper. Put a layer in a buttered dish, then a layer of bread crumbs and a few spoonfuls of gravy; repeat the same, leaving the bread crumbs on top. Dot with butter and bake until a nice brown.

Oat Meal Mush with Apples.

Core apples, leaving large cavities; pare and cook until soft in syrup made by boiling sugar and water together. Fill cavities with oat-meal mush. Serve with sugar and cream.

Cheese Aigrettes.

Grate three ounces of cheese, and put it aside on a plate. Put on in a saucepan half a pint of water with two ounces of fine flour, and continue stirring until it thickens and leaves the sides of the pan. Remove it to the side of the fire, add one egg, mix well; then a third of the cheese, mixing again; repeating this process till three eggs and all the cheese have been put in; season with one teaspoonful of dry mustard and a little pepper and salt.

With a dessertspoon drop the mixture into boiling fat, and let them cook until very much risen and a nice brown, then take them out, drain for a minute in the oven, and serve very hot on a napkin. The above will make twenty.

Celery Souffle with Cheese.

Clean one pound of white celery carefully, and cut it in small pieces. Put it in an enameled pan with as little milk as possible, and let it simmer till tender, then boil rapidly to reduce the liquid. Pass it through a wire sieve and put it aside to cool. Beat two ounces of butter to a cream, and add to it the yolks of four eggs, one at a time, beating each one well in. Add the celery gradually, mixing well; also an ounce and a half of grated Parmesan cheese, and season with a little celery salt. Beat the whites of five eggs to a very stiff froth, and stir them into the mixture very gently. Fill small paper cases about three-quarters full, and sprinkle on each a little of the cheese salt. Bake in a hot oven for seven minutes. Arrange tastefully on a napkin and serve immediately. Sufficient for a double entremet.

Savory Cheese Cakes.

Put in a saucepan a gill of sweet milk with one ounce of butter and a little salt, let the butter melt and come to a boil, then stir in two ounces of flour with a wooden spoon, and go on stirring till quite smooth. Heat it on the fire for a minute, then take it off, and add to it three ounces of grated Parmesan cheese, half a teaspoonful of dry mustard, and a little white pepper, then stir in two eggs, adding one at a time. Take about a quarter of a pound of puff-paste trimmings, roll it to about an eighth of an inch in thickness, stamp out two dozen rounds with a cutter two inches in diameter, put them on an oven tin, about an inch apart from each other, brush them with beaten

egg, put a teaspoonful of the prepared mixture on the center of each round, then turn up the sides so as to form them into the shape of a three-cornered hat, brush them lightly with egg, bake in the oven to a nice light brown, and serve hot on a folded napkin.

Cheese Custards.

For a party of eighteen or twenty, beat up in a small saucepan five eggs, add to them half a pint of milk, season with white pepper, grated nutmeg and salt, then put on a slow fire, and stir until it begins to thicken, after which take it off, and stir in four ounces of grated cheese. Brush eighteen small zephyr molds with melted butter, fill them with the custard, put them in a saucepan with boiling water in the bottom, cover with a round of buttered paper, and steam slowly till firm, which takes about twenty minutes. When ready turn out and serve on two dishes.

Cheese Custard Fritters.

Prepare the custards as in the foregoing recipe, and set them aside to cool. When quite cold, brush them with beaten egg, seasoned with a little pepper and dry mustard, then coat with fine fresh bread crumbs, fry to a light brown in boiling fat, and serve hot on a folded napkin.

Cheese Canapes.

From thin slices of stale bread cut, with a cutter about two inches long and an inch and a half broad, as many croutons as you require, and fry to a light brown in clarified butter. Spread a little made mustard on each, then a thin slice of cheese, on which sprinkle a little pepper, and put them in the oven until the cheese is melted, and serve hot.

Cheese Fondue.

Two cupfuls of milk, with a pinch of soda stirred in; one cupful very dry, fine bread crumbs; one-half pound of

dry cheese, grated; four eggs; tablespoonful melted butter; Cayenne pepper, and salt. Soak the crumbs in the milk, beat in the eggs, butter and seasoning, lastly the cheese. Butter a pudding dish, put in the mixture, put fine crumbs on top. Bake, covered, half an hour, then brown quickly. Eat immediately, as it falls in cooling.

Cheese Fritters.

Beat up two tablespoonfuls of flour with one teaspoonful of made mustard, add half a teacupful of sweet milk, a little salt, two ounces of cheese grated, and the whites of two eggs, beat up till very stiff, and mix all gently together. Have some lard boiling in the frying-pan, drop them in with a deserts- spoon, fry them to a nice light brown, drain in the oven, and dish them on a napkin.

Scotch Woodcock.

Mix in a pan on the stove two ounces of grated cheese, one teaspoonful and a half of anchovy paste, half a teacupful of cream, and a small pinch of Cayenne. Let it melt and just come to the boil. Have three slices of bread fried in butter to a nice light brown. Cover each with the mixture, and serve as hot as possible.

Macaroni and Cheese.

Boil the macaroni in salt and water rapidly for about twenty minutes. Butter a pudding dish, put in the bottom a layer of macaroni, sprinkle grated cheese over the top, then put on a layer of cream sauce, and so on until the dish is filled. Put on top a layer of half bread crumbs and grated cheese. Put in the oven for about twenty minutes to brown.

Noodles with Cheese.

Melt in an enameled pan one ounce of butter with one ounce of flour, add five tablespoonfuls of milk, a pinch of salt, and a few grains of Cayenne;

stir well till it becomes a thick paste and leaves the sides of the pan; then remove from the fire and stir in two ounces and a half of grated cheese, mixing thoroughly, drop in two eggs, one at the time, stirring well after each, put on the fire again and stir till the eggs are cooked without allowing it to boil. Have the pan with boiling water in it and a good teaspoonful of salt, drop the mixture in dessertspoonfuls into it, after which remove to the back of the stove. Let them poach for fifteen minutes, drain, and serve hot on a napkin with brown bread crumbs sprinkled on them.

Cheese Straws.

Rub two ounces of butter into four ounces of flour, then mix with it four ounces of finely grated cheese, a teaspoonful of dry mustard, a pinch of Cayenne, and make it into a smooth dough with two eggs; roll this out, and give it a few folds similar to pastry; let the last fold form it into a square, then with a knife or paste runner cut it into straws about four inches long; put them on a clean oven tin, and bake in a moderate oven to a nice light brown. Have a table napkin neatly folded on a dish, pile them on it crosswise, place them before the fire to toast, and serve hot.

Chicken Croquettes.

Chicken croquettes are easily prepared and make an excellent luncheon or supper dish. Take one boiled chicken, two ounces of melted butter, two ounces of flour, one cup of the water the fowl has been boiled in, one-half cup of cream, pepper and salt, two eggs, nutmeg. Boil the butter, flour, cream and water together for two minutes. Mix with the minced chicken, cool, then mold, roll in egg, then in bread crumbs, and fry.

Another.—One solid pint of finely chopped cooked chicken, one tablespoonful of salt, half teaspoonful of pepper, one cupful of cream or chicken stock, one tablespoonful of flour, four eggs, one teaspoonful of onion juice, one tablespoonful of lemon juice, one pint of crumbs, three tablespoonfuls of butter. Put cream or stock on to boil. Mix flour and butter together and stir into the cream, then add chicken and seasoning. Boil ten minutes. Add two of the eggs well beaten. Take from the fire and cool it. When cool, shape them into croquettes and fry in boiling fat.

Fish Croquettes.

Use canned fish or the remnants of boiled or fried fish. Mince it fine. Season with salt and pepper and a little lemon juice, a half tablespoonful of melted butter and a heaping tablespoonful of flour. Stir on the stove until the flour is cooked but not browned. Pour in a cupful of milk or cream, then the fish. If too thick, use more milk or cream. Roll into shapes. Roll in cracker crumbs, then beaten egg and again cracker crumbs. Fry in hot lard. Roll as soft as possible.

Ham Croquettes.

One cupful of finely chopped ham, two cupfuls of hot mashed potatoes, half a cupful of bread crumbs, a tablespoonful of butter and three well beaten eggs. Beat all together, and when cool shape into croquettes. Dip in beaten egg and cracker crumbs and fry in hot lard.

Meat Croquettes.

One pint of cold, chopped meat, one pint of hot rice. Season with salt and pepper and two tablespoonfuls of melted butter. Form into croquettes and roll in beaten egg and cracker crumbs, and fry in hot lard.

Potato Croquettes.

Pare, boil, and mash six good-sized potatoes; add one tablespoonful of butter, two thirds cupful of hot milk or cream, whites of two eggs, well beaten, and salt and pepper to taste. Let it get cold, shape into croquettes, dip in egg and cracker or bread crumbs. Fry in boiling fat until brown.

French Potato Croquettes.

Two cups of hot riced potatoes, two teaspoonfuls of butter, yolks of three eggs, half a teaspoonful of salt and a few grains of Cayenne. Mix ingredients in order given and beat thoroughly. Shape in balls, then in rolls pointed at ends. Roll in flour. Fry in deep fat and drain.

Sweet Potato Croquettes.

One half cupful of milk; two generous tablespoonfuls of butter; one teaspoonful of salt; one egg; enough boiled sweet potatoes to make a pint. Mash the potatoes smooth and light, beat into them the hot milk, then salt and butter, beat the egg light and add. Shape into croquettes and dip in egg and bread crumbs, and fry until a light brown. Serve at once.

Rice Croquettes.

Large cupful of cooked rice, half cupful of milk, one egg, tablespoonful of sugar, one of butter, half teaspoonful of salt. Put the milk on to boil; add rice and seasoning. When it boils add an egg, well beaten; stir one minute, then take off and cool. When cold, shape the croquettes, and dip in egg and cracker or bread crumbs. Fry in boiling fat until brown.

Savory Croquettes of Rice.

Put on three ounces of the best whole rice with one pint of white stock, one

ounce of butter, a little pepper and salt, and let it simmer gently by the side of the fire till soft, which will take about forty-five minutes. When ready, stir in one ounce of grated Parmesan cheese and the yolks of two eggs, stir over the fire till the eggs begin to thicken, then pour out on a flat dish, and set aside till quite cold and stiff. Form into balls of an equal size, roll them in flour, then brush lightly with beaten egg, coat with bread crumbs, and fry in boiling fat; drain in the oven for a minute or two, and serve hot on a neatly-folded napkin, with sprigs of parsley for garnish.

Boiled Dinner.

Wash a piece of corned beef weighing five pounds; put into one gallon of cold water; when it comes to a boil, skim carefully and boil slowly three hours. At the beginning of the last hour add a small head of cabbage cut in two, and fifteen minutes later add three carrots and three turnips nicely cleaned. Lastly, add six potatoes, allowing one-half hour for them to boil. Cook beets in a separate kettle. When the remainder of the beef is to be pressed, care should be taken in the selection. The brisket and thin parts of the ribs are best for this.

Suet Dumplings.

To one quart of flour add half a pound of beef suet broken in very small pieces, one cupful of peach marmalade, a little salt, one teaspoonful of soda. Knead it with buttermilk, and make the dough out into dumplings larger than biscuit, and boil them till done. Serve up while hot with a rich sauce.

Mock Duck.

Split pork tenderloins half through. Fill them with turkey dressing. Roll them up and tie them. Sprinkle them with salt and bake in the oven, basting often.

Egg Balls.

Boil four eggs for fifteen minutes, take them out and lay them in cold water for ten minutes, then take off the shells and whites, and pound the yolks in a mortar, drop in the white of one egg, add a little flour, beat it up with a spoon, and form into eight little balls.

Eggs—Hard and Soft Boiled.

It is understood that eggs are more easily digested if "rare" than "well" done; but which portion of the egg resists digestion—the "white," which is nearly pure albumen, or the yolk? Lately, experiments have been made in this direction, with ample opportunity of demonstrating that healthy gastric juice, which the stomach secretes for purposes of digestion, will not act readily on coagulated white of egg, even if cut in pieces not larger than ordinary peas (and that is as fine as people usually chew their food), while it acts with facility upon the more brittle yolk. The reason is that the coagulated albumen is very compact and tenacious, and would need to be "ground to powder" to accept the chemical affinities of the gastric juice.

The Best Way to Boil.—Pour into a basin boiling water sufficient to cover the eggs, put the eggs into the water and let them remain five to fifteen minutes, according to circumstances and your own taste; keep the water nearly up to boiling temperature, but do not boil the eggs. Fresh eggs will cook more quickly than old ones, and, of course, small ones quicker than large ones. By this process you will find the yolks well cooked, while the white is left in a condition to digest readily.

Soft Boiled Eggs—Best Way.

Cover the eggs with boiling water. Let them stand from five to ten minutes where they will keep hot, but not boil. Serve immediately.

Breaded Eggs.

Slice cold hard boiled eggs, pepper and salt and dip each slice in beaten egg, then in cracker dust. Leave in a cold place for about an hour, and fry in deep fat to a rich brown. Dish and garnish with parsley and serve with tomato sauce.

Eggs—Broiled.

Cut a large round of bread; toast it on both sides, and butter it. Carefully break six eggs, and arrange them upon the toast; sprinkle over them some salt and pepper, and slowly pass a red-hot shovel up and down over them until they are well set. Squeeze upon them the juice of an orange, and strew over a little grated nutmeg. Serve as quickly as possible. If preferred, the toasted bread may be dipped into some warmed cream, and some poached eggs placed upon it, and then glazed with a red-hot turner.

Buttered Eggs.

Beat up as many fresh eggs as you require, put a piece of butter in a saucepan, shake it one way until melted, add two tablespoonfuls of cream, put in the beaten eggs and stir constantly until they become thick. Have slices of toasted bread buttered and hot, cut into square pieces, on which pile the eggs, and serve on a napkin.

Egg Cutlets.

Boil six eggs for an hour slowly. Put in a saucepan two scant tablespoonfuls of butter and four tablespoonfuls of flour. Set over the fire until melted and mixed, then add slowly one and a half cupfuls of milk, and stir until thick and smooth. Season with salt and pepper and a little lemon juice. Add the eggs, coarsely chopped, and set away until cold. Mold into small cutlets and dip in egg and bread-crumbs and fry until a light brown. Eat with cream sauce.

Minced Ham with Eggs.

Take some slices of boiled ham, and mince very fine; put a little pat of butter in saucepan, with a little flour, and brown it, then put in the minced ham, with a spoonful of stock, stir, and make it hot. When wanted serve with poached eggs on the top.

Mulled Egg.

Beat the yolk of a fresh egg in a tea or coffee cup, put in a little milk or cream and sugar, and then pour into it as much tea or coffee as will fill the cup, taking care to stir it well at the same time to prevent the egg from curdling. This makes a good breakfast for an invalid. It is light and nourishing without being heating.

Egg Omelette.

Unless a large omelette is to be made a small frying-pan should be used, so as to insure thickness. Five or six eggs will make a good sized omelette. Beat them well with a fork or egg beater; add a saltspoon of salt; put 2 ounces of butter in the frying pan; when melted pour in the omelette (beaten eggs) stir with a spoon until it begins to set, then turn it up all around the edges, and when it is of a nice brown it is done. To take it out, turn a hot plate over the omelette, and turn the pan upside down. Double it over like a turn-over, and serve hot. If not sufficiently done on the top, brown with a salamander or a heated shovel. To have the omelette particularly fine, about as many whites as yolks should be used.

Omelette.

Four eggs, one teaspoonful of salt, ten tablespoonfuls of milk, one tablespoonful of butter. Beat the eggs thoroughly until light; add salt and milk. Have a frying-pan very hot. Put in the butter and pour in the egg. Shake vigorously on the hottest part of the stove until the eggs begin to

thicken, then let it stand a few seconds to brown. Run a knife under the omelette, fold, and turn on a hot dish. Serve quickly.

Bread Omelette.

Four eggs, one-half cup milk, one-half cup stale bread crumbs, three-quarters teaspoonful of salt, one-eighth teaspoonful of pepper, and one teaspoonful of butter. Soak the bread crumbs fifteen minutes in milk, add beaten yolks and seasonings; fold in whites. Cook and serve as plain omelette.

Cheese Omelette.

Make the plain omelette, and as soon as it begins to thicken, sprinkle in three tablespoonfuls of grated cheese.

Corn Omelette.

One can (or one dozen ears) corn, half cup milk, four eggs, and three tablespoonfuls of butter; beat the eggs, chop corn, add it and the milk, season with salt and pepper, add the butter. Fry in a hot pan.

Omelette with Meat and Vegetables.

Mix and cook plain omelette. Fold in remnants of finely chopped cooked chicken, veal or ham. Remnants of fish may be added to white sauce; or cooked peas, asparagus, or the like may be added.

Sausage Omelette.

Make of six eggs plain omelette, and fry in a teaspoonful of butter. Before folding omelette, lay on it three cooked sausages which have been steamed, minced fine and heated. Fold the omelette and serve.

Savory Omelette.

Take three eggs, separate the yolks from the whites, put the yolks in a basin, and beat the whites on a dinner-plate to a snow; beat up the yolks with a little salt, a tablespoonful of flour, and two

tablespoonfuls of thick cream; mince a little green parsley, one onion, with some sweet herbs, add them to the yolks, and mix in the whites. Have a clean frying-pan with a piece of butter hot, pour in the omelette, and hold it over a slow fire until fastened and well risen; then brown it, and dish on a napkin. You may make another omelette the same way by substituting grated ham, tongue, or pounded chicken, keeping out the parsley and herbs.

Tomato Omelette.

Peel and chop fine four large tomatoes; add to them a half teaspoonful of grated bread or cracker crumbs, salt and pepper and five well beaten eggs. Put into a hot frying-pan a small piece of butter; turn in the mixture. Stir rapidly until it begins to thicken. Let it brown and fold together. Turn into a hot platter and serve immediately.

Supreme of Eggs.

Boil five eggs for ten minutes, let them cool, and take the shells from them carefully; cut them across, scoop out the yolks, and cut the points off the whites to flatten them for dishing. Pound the yolks in a mortar with one ounce of butter, two ounces of grated cheese, the raw yolk of one egg, a teaspoonful of dry mustard, two tablespoonfuls of thick cream, a pinch of Cayenne, and a little white pepper and salt. Pound all well together, fill the cups made from the whites, raising them towards the center, and smoothing with a knife dipped in cold water. Scatter a little grated cheese on them, and put them in the oven for ten minutes, but do not color them. Spread what is left of the yolk mixture on the bottom of the entire dish, arrange the eggs on it neatly, put a small diamond of beetroot or pickled gherkin on the top of each, and serve with Chili vinegar.

Eggs—To Poach.

The beauty of a poached egg, like a fried one, consists in having the white just sufficiently hardened to form a transparent veil for the yolk. Pour from a tea kettle as much boiling water as you need, through a clean cloth into a saucepan; it should be half filled. Break the eggs separately into a cup or saucer, and when the water boils remove the pan from the heat, and gently slip the eggs in; when the white is set replace the pan over the fire (which should be moderate), and as soon as the water boils the eggs are done; remove them with a slice and trim off the ragged edges. If served on toast, cut the bread in pieces a little larger than the egg, and about one-fourth of an inch thick; brown only on one side, and just enough to give a yellow color; too much browning yields a bitter flavor. The toast may be moistened with a little hot water. Some sprinkle on it a few drops of vinegar or essence of anchovy sauce.

Poached Egg with Tomato.

Cut bread into slices three-fourths of an inch thick, then into circles with a small cutter half way through the bread and remove the center, leaving a form like a patty case. Fry in hot fat. Fill the centers with well seasoned tomato sauce, and place on the top of each one a poached egg.

Scotch Eggs.

One cupful of cooked lean ham, chopped very fine, one-third cupful of stale bread-crumbs, one-third cupful of milk, half teaspoonful of mixed mustard, pinch of Cayenne, one raw egg and six hard boiled eggs. Cook bread and milk together until a smooth paste; add to the ham seasoning and raw egg. Mix thoroughly. Break the shells from the eggs. Cover with this mixture. Try in boiling water for ten minutes.

Stuffed Eggs.

To make twelve, boil six eggs for ten minutes, and put them in cold water for a short time. Take them out, and divide each crosswise, taking care not to break the white part, take out the yolks, and flatten the white cups at the ends by slicing off a very little. Pound the yolks with one ounce of butter, three anchovies, washed and trimmed; chop together eight olives, one teaspoonful of capers, and three pieces of truffle; add these to the yolks, season with pepper, salt, and a few grains of Cayenne, and mix well. Fill the cups with this mixture, raising them towards the center, and smoothing them with a knife dipped in water. Garnish them on the top with chopped truffles, and put them in the oven till thoroughly heated; place each egg on a round crouton of bread, and serve. If preferred, they may be served cold, without being put in the oven.

Finnan Haddock Canapes.

Cook a little on the gridiron, or in the oven, a good-sized Finnan haddock, remove from it the bones, skin, and trimmings, pound it well in a mortar with three ounces of butter. Cut out eighteen or twenty rounds of stale bread, three-eighths of an inch thick, with a two-inch cutter, and fry them in butter to a nice golden brown. Cover them with the mixture, raising it towards the centers, put in the oven long enough to get thoroughly heated, but not to brown, and serve hot.

Fillets of Soles a la Cardinal.

Clean, skin, and fillet a medium-sized sole, divide each fillet in two, making in all eight pieces. Put these on a buttered dish, with a morsel of butter on each, cover with buttered paper, then with another dish of the same size, and cook in the oven for ten minutes, after which take them off the dish, and put them aside till quite cool.

Have ready about half a pint of Cardinal sauce (see recipe for it), add to it about a gill of stiff, savory jelly, with a little of the gravy from the dish on which the fish was cooked, mix well, pour into a basin, and stir occasionally till quite cold, but not set. When ready, coat the pieces of sole, and put them aside to firm; then arrange neatly in a circle on an ornamental paper, with prawns scattered in a little stock, and mixed with aspic jelly in the center, and a wreath of parsley for a border.

Imitation Foie-Gras.

Cut in small pieces equal quantities of fat bacon, veal, and livers of chickens or fowls, say four ounces of each, put them on in a saucepan, with a few pepper-corns, two cloves, one bay-leaf, two sprigs of parsley, a few mushrooms and a very small onion sliced. Let it fry all together for a minute or two, but not too long, as the liver has a tendency to harden, then remove to the side of the fire, and let it simmer for twenty minutes. When ready, add a little salt, then pound in a mortar, after which force through a wire sieve, spread out on a dish, and set aside for use. If wanted for a shape, cut into small round cakes, place them in a circular order in a border mold, with aspic jelly. In addition to the parsley and lobster roe, hard-boiled whites of eggs and truffles, cut into small pieces, may be used for ornamenting.

Fowl—Hashed.

Cut it to pieces, and put it into some gravy, with a little milk, catsup, or mushroom powder, grated lemon peel, and nutmeg, a few oysters and their liquor, a piece of butter, mixed with flour; keep it stirring till the butter is melted; lay sippets in the dish.

Fritters—Batter for.

One cup flour, one-fourth teaspoonful salt, two-thirds cup of milk, yolks

and whites of two eggs beaten separately, one tablespoonful olive oil or melted butter. Mix salt and flour, add milk gradually, yolks of eggs, butter, and stiff whites. A tablespoonful of sugar may be added if liked.

Another.—One pint of flour, half a pint of milk, one tablespoonful of butter, one teaspoonful of salt, two eggs. Beat the eggs light. Add the milk and salt to them. Pour half of this mixture on the flour, and when beaten light and smooth add the remainder and the butter. This batter can be used for all kinds of fritters.

Apple Fritters.

Core and pare three or four apples. Cut them crosswise into slices one-third of an inch thick, leaving the opening in the center. Sprinkle with lemon, sugar and spice. Let stand one hour. Dip each slice in fritter batter, and fry in deep, hot fat. Drain, and sprinkle with powdered sugar. Serve hot, with or without hard sauce.

Cream Fritters.

One pint of milk, yolks of six eggs, whites of two, two tablespoonfuls of sugar, half a pint of flour, three tablespoonfuls of butter, half a teaspoonful of salt. Put half the milk on in the double boiler and mix the flour to a smooth paste with the other half. When the milk boils stir this in. Cook five minutes, stirring constantly. Add butter, sugar and salt. Beat the eggs and stir into the mixture. Pour into a buttered pan; have it about an inch deep in the pan. When cold, cut into small squares, dip in eggs and crumbs and fry in boiling lard.

Custard Fritters.

Beat the yolks of four eggs with a dessertspoonful of flour, a little nutmeg, salt and brandy; add half a pint of cream; sweeten it to taste, and bake

it in a small dish for a quarter of an hour. When cold, cut it into quarters and dip them into a batter made with one-fourth of a pint each of milk and cream, the whites of four eggs, a little flour, and a good bit of grated ginger; fry them brown; grate sugar over them and serve them as hot as possible.

Oyster Fritters.

One pint of oysters, two eggs, one pint of flour, one heaping teaspoonful of salad oil or butter, enough water with the oyster liquor to make a scant half-pint. Drain, and chop the oysters. Add water and salt to the liquor. Pour part of this on the flour, and when smooth add the remainder; add oil and eggs well beaten. Stir the oysters into the batter. Drop small teaspoonfuls into boiling fat and fry till brown.

Parsnip Fritters.

Boil, scrape, and mash; take out fibers and hard bits. Add to four large parsnips one beaten egg, a teaspoonful of flour, with pepper and salt. Form into small, round cakes, roll in flour and fry. Drain well and serve hot.

Tomato Fritters.

Take one quart of stewed tomatoes; stir in one egg, one small teaspoonful of saleratus or soda, and flour enough to make it of the consistency of pancakes.

Corned Beef Hash.

Put a tablespoonful of butter and a small grated onion into a frying-pan. Cook three or four minutes without browning. Add a tablespoonful of flour. Cook one minute, add cupful of meat stock or boiling water and a little beef extract if you have it. Cook three minutes. It should be a thick sauce. One pint chopped corned beef and the same of chopped potatoes. Stir for several minutes and season to taste.

Corned Beef Hash with Beets.

When preparing corned beef hash, add one-half as much finely chopped cooked beets as potatoes. Cold roast beef and one-half corned beef may be used.

Tongue Hash.

Chop boiled tongue quite fine, and chop twice as much cold boiled potatoes. Moisten slightly with milk or cream. Season with salt and pepper. Put butter into a frying-pan, and when hot put in the hash. Cook slowly for about fifteen minutes, then brown quickly.

Hashed Turkey.

Chop fine cold roast turkey; season with pepper and salt, and warm it in the gravy. If there is not sufficient gravy left to moisten the meat add a little water and a piece of butter. Serve on slices of buttered toast. Poached eggs may be laid over the toast.

Devonshire Junket.

Put warm milk into a bowl, turn it with a little rennet, then add some scalded cream, sugar and cinnamon on the top, without breaking the curd.

Liver Loaf.

Boil one pound of liver until tender, chop fine, also chop a half pound of ham and two hard boiled eggs, one cupful of bread crumbs. Mix all together. Season with salt and pepper, and if liked a little grated onion. Add a half cupful of stock or cream sauce. Butter a mold and put the mixture in. Boil for two hours. Serve with drawn-butter sauce or cream sauce with chopped egg.

Stuffed Kidneys.

Split the kidneys lengthwise, leaving enough meat and skin on one side to serve as a hinge. Rub well inside with melted butter, and broil them, back downwards, over a bright fire for about nine minutes. Have ready a stuffing

of bread crumbs, cooked salt pork, parsley and butter, seasoned with pepper, salt and onion juice. Heat in a saucepan set in another of boiling water, stir in the juice of half a lemon, fill the kidneys with the mixture, run a toothpick through the outer edges to keep in the stuffing, pepper them and serve.

Macaroni—Boiled.

Soak and boil the macaroni in plenty of milk and water; throw in a little salt. Boil until tender, but not until the form is lost. When soft, turn into a baking dish, pour over the top the contents of a whisked egg, and bake until brown. This process renders it a more attractive dish than when simply boiled. Macaroni, with cream, sugar and cinnamon, makes a very nice, sweet dish.

Macaroni with Cheese.

Boil one-half package of macaroni, broken in small pieces, in plenty of boiling, salted water, until tender; place in a baking dish a layer of macaroni, then a layer of grated cheese, then a layer of macaroni, and pour over all a cupful of milk. Bake until brown.

Meat Panada.

Take the inside of a loin of mutton or of part of a sirloin of beef; pound it until it will pass through a sieve when mixed with hot water or with broth, as it is required to be more or less rich. The most proper seasoning is a little salt. It ought to be kept in an earthen vessel in a cool place. When a little of it is required it should be warmed up and served with thin slices of bread.

Meat Souffle.

Cupful of gravy or cream sauce, yolks of two eggs, well beaten, one cupful of chopped meat. Add these to the gravy or sauce. Season with salt and pepper and onion juice if liked. Cook until heated through.

While it is cooling, beat the whites of the eggs to a stiff froth, add them to the mixture, pour into a buttered baking dish. Bake until set in center. Serve immediately.

Meat—Stewed.

Stewing is undoubtedly the most economical mode of cooking meat; by its use every part of the meat is retained, and nothing is lost or wasted. Joints, too tough or sinewy to be used in any other way, may be stewed with advantage. Stewing consists in subjecting meat for a considerable time to a very moderate heat in a small quantity of water. No good stew for an early dinner can be made the day it is wanted. The plan recommended is to cut the meat in pieces of the required size, pack them closely together, covering them with cold water, or what is preferable, broth; place the kettle where it will gradually warm, and keep it for some hours at a heat considerably short of boiling. The albumen is thus dissolved, and the fibres so far softened and separated that the very toughest parts become tender and digestible. The stew should be put away in an open vessel until the next day, when the fat should be removed from the top, and vegetables and seasoning added.

Collops—Minced.

A favorite Scotch dish. Take 2 lbs. of good beefsteak, mince it quite fine, and free from fat or skin; put into a deep frying-pan with a good sized piece of butter. As the butter melts, stir the mince about with a silver fork, so as to separate the particles and give the mince a granulated appearance; as soon as the meat looks white, put in a teacupful of clear gravy, a little pepper and salt, and either mushroom catsup or Worcester sauce enough to flavor it; a minced onion may be used if there is no objection to its taste. Stir the mince about till the gravy begins to boil, then serve with toasted sippets.

Mushrooms—Broiled.

Mushroom-flaps, pepper and salt to taste, butter, lemon juice. Cleanse the mushrooms by wiping with a piece of flannel and a little salt; cut off a portion of the stalk, and peel the tops; broil them over a clear fire, turning them once, and arrange them on a very hot dish. Put a small piece of butter on each mushroom, season with pepper and salt, and squeeze over them a few drops of lemon juice. Place the dish before the fire and when the butter is melted serve very hot and quickly. Moderate-sized flaps are better suited to this mode of cooking than the buttons; the latter are better in stews. Always be sure that they are not poisonous.

Oysters—Artificial.

Take young green corn, and grate it in a dish; to 1 pint of this add 1 egg well beaten, a small teacup of flour, $\frac{1}{2}$ a cup of butter, some salt and pepper, and mix them well together. A table-spoonful of the batter will make the size of an oyster. Fry them a light brown, and when done butter them. Cream, if it can be procured, is better than butter.

Chicken-Oyster Pie.

Melt a little butter in a deep baking dish, scatter over it cracker crumbs, add a layer of chicken, picked fine, then a layer of oysters, salt and pepper and bits of butter, then a layer of cracker crumbs; alternate with the chicken and oysters until the dish is full, adding seasoning with each layer. Pour over the whole the oyster liquor, to which add a well beaten egg and a teacupful of milk. Bake an hour.

Oyster Pie.

Fifty oysters, two hard boiled eggs, butter the size of an egg, one-fourth cupful of fine bread crumbs, pepper and salt. Line the sides of the dish with pie crust, but not the bottom. To

each layer of oysters, a layer of bread crumbs, etc. Continue this until the dish is full. Cover with a crust and cook for a half hour.

Ham Patties.

Take half pint fine-chopped, cold, boiled ham. Mix with two pints of fine bread crumbs wet with milk. Put the batter into gem pans, break one fresh egg over each. Sprinkle the top over thickly with cracker crumbs and bake until well browned.

Peanut Sandwiches.

Skin fresh roasted peanuts and pound fine. Form this into a paste with melted butter. Season with salt and cayenne pepper, and spread between squares of brown or white bread. They are delicious.

Corn Pudding.

Scrape two dozen ears of green corn with a sharp knife, cutting each row through the middle. Add one pint of milk, half pound of butter, three eggs, the white and yolks beaten separately, a pinch of salt and white pepper. Stir the yolks into the milk and corn, pour into a baking dish, stir in the whites, and bake about one hour and a half.

Breaded Sausages.

Wipe the sausages dry. Dip them in beaten eggs and bread crumbs. Fry in boiling fat for ten minutes.

Chicken Pot Pie.

Clean, singe, and joint a pair of chickens. Pare and slice 8 whole potatoes; wash the slices, and put with the pieces of chicken into a pan lined with pie crust; season with salt and pepper, dredge with flour, and cover with water. Cover with paste, making a core in the center; cover the kettle, and set it in the oven. Turn occasionally to brown evenly. Two hours' cooking is sufficient. When done, cut the upper crust into moderate sized pieces and place them on a

large dish; with a perforated ladle take up the potato and chicken; and put it upon the crust; cut the lower crust and put on the top. Serve the gravy hot in a gravy tureen.

Brose—Scotch.

Put a few handfuls of oatmeal into a wooden dish; then pour in a little boiling water, and mix thoroughly. Add a little salt. This dish is frequently used as a substitute for porridge, when it is inconvenient to cook the latter. Fresh milk added is a great improvement.

Small Macaroni Timbales.

To make twenty, put on four ounces of best macaroni in cold water, let it simmer till soft, which will take nearly an hour, and drain it. When cold cut it into half-inch lengths, put these on in a sauc pan with one ounce of butter, four ounces of grated cheese, a little dry mustard, pepper, and salt. Stir over the fire for a minute, or till the cheese is melted. Line the small molds with common paste or trimmings of puff-paste, then fill with the prepared macaroni, sprinkle grated cheese on the top of each, bake in a quick oven to a nice brown, turn out, and serve hot on a napkin.

Celery Toast.

With a cutter two and a half inches long, by one and a half broad, stamp out ten toasts from slices of bread about half an inch thick. Then with a cutter a little smaller mark them slightly on the top. Deepen this mark a little with the point of a knife, and fry them in boiling fat to a golden brown. After frying, put them in the oven for a few minutes to dry, then scoop out the centres by the mark, taking care not to break the toasts. Cut the white parts of two heads, put them in a saucepan with enough white stock to barely cover them, and stew gently for an hour. When

ready, put the celery in equal proportions on the toast. Moisten half a teaspoonful of potato flour with a little ketchup and stir it into the stock. Season it with pepper and salt; let it boil for three minutes, then pour it in equal proportions over the celery. If liked, a little grated cheese may be sprinkled on them before serving.

French Toast.

Take thin slices of stale bread; dip first in milk which has been salted, then in beaten egg; fry a nice brown on both sides.

Ham Toast.

Cut thin slices of bread from a stale loaf, take off the crust, divide into pieces from two to three inches long, and fully an inch wide, and fry in boiling fat. Cover half the number of the pieces of toast with lean ham, sliced as thin as possible, sprinkle over them some grated cheese, and lay on that the remaining slices of toast. Put them in the oven till thoroughly heated, and serve very hot on a folded napkin.

Mushroom Toast.

Take as many mushrooms just opened as will be wanted, remove the stalks, wash and drain them, and place them on a flat dish with the hollow parts upwards. Put a small piece of butter into each mushroom, sprinkle a little pepper and salt on them, and put them in the oven for about fifteen minutes, or till they are tender. With a cutter two inches in diameter cut out as many rounds of bread, half an inch thick, as there are mushrooms, scoop a little hollow in the centre of each, and fry them in boiling fat. Place a mushroom on each round of toast, with a little of the gravy, and serve hot.

Green Onion Toast.

Cut small one bunch of green onions and put them in a pan barely covered with boiling water. Add a small half-teaspoonful of salt, the same quantity of sugar, and boil gently for one hour and a half. Then add from four to six sage leaves, powdered, a quarter of an ounce of butter, and more salt if needed. Have ready two slices of toast buttered, divide each slice into four, and spread with equal proportions of the onion. Serve very hot. This can be made also with Portugal onions.

Craigie Toast.

Beat three eggs, add one green Chili and the inside of two tomatoes, both finely minced, a little milk, one ounce of butter, and a little salt. Mix all together, and put on in a pan to get thoroughly heated. Have small pieces of stale bread cut half an inch thick, with a cutter either round or square, and fried in boiling fat. Cover the toast with the mixture, and serve hot.

Tomato Soufflé.

To fill ten or a dozen paper cases, melt one ounce of butter with one ounce of flour, add to it about a gill and a half of tomato pulp, a little powdered thyme, white pepper and salt; let it boil gently for five minutes stirring constantly, after which remove to the side of the fire, mix in the yolks of two eggs, then pour into a basin, and set aside to cool a little. While it is cooling, whip up the whites of the eggs to a stiff froth, and mix gently together. Fill the paper cases about two-thirds, bake in the oven for about ten minutes, and serve hot on a napkin.

Soufflé Tomatoes.

The tomatoes must be of the medium size, well shaped, and not too ripe; cut a very thin slice off the top

of each, squeeze out the seeds and water, then with a teaspoon scoop out the insides, being very careful to keep them whole, and sprinkle with a little pepper and salt. Prepare a soufflé mixture as described in the foregoing recipe, using the slices cut off and what was taken from the insides of the tomatoes to make the pulp. Fill the tomatoes nearly to the top with the soufflé mixture, and bake in the oven for fifteen or twenty minutes, and serve immediately.

Escalloped Tongue.

Chop cold tongue. For each pint, one tablespoonful of onion juice, teaspoonful of salt, cupful of bread crumbs, half cupful of stock, three tablespoonfuls of butter. Butter a pudding dish. Mix the tongue with seasoning and stock. Cover the bottom of the dish with bread crumbs, then put in the tongue. Cover the top with the remaining bread crumbs and a little melted butter. Bake about twenty-five minutes.

Deviled Legs of Turkey.

Mix together a tablespoonful of French mustard, one of salad oil, one teaspoonful of essence of anchovies, and one tablespoonful of Cayenne sauce. Scour with a knife the legs of the turkeys, then rub in the mixture, and cook on the grid-iron till crisp and brown, without burning.

Turkey—Hashed.

Mix some flour with a piece of butter, stir it into some cream, and a little veal gravy, till it boils up; cut the turkey in pieces, not too small; put into the sauce, with grated lemon peel, white pepper and mace, pounded, a little mushroom powder or catsup; simmer it up. Oysters may be added.

Mock Venison.

Put into the chafing dish a heaping teaspoonful of butter, work it with a spoon until it creams and foams, then put in a generous slice of raw or very rare saddle of mutton, toss it about in the butter a few minutes, add salt and a little Cayenne, a tablespoonful of pure currant jelly and a gill of Madeira or fine port. Simmer a few minutes and serve. (See Veal.)

Welsh Rabbit.

Take half a pound of cheese, cut off the skin, take a small frying-pan, put in it half a teacupful of strong ale, and when it boils put in the cheese, and let it boil for a minute or two; then stir a teaspoonful of mustard when it becomes liquid; toast a thick slice of bread, cut off the crust, butter it well, and set it before the fire to keep it hot. When it is wanted, have a dish and a cover very hot, put the cheese on the toast, and send it to table immediately.

VEGETABLES.

Vegetables—Keeping.

Sink a barrel two-thirds of its depth into the ground (a box or cask will answer a better purpose); heap the earth around the part projecting out of the ground, with a slope on all sides; place the vegetables that you desire to keep in the vessel; cover the top with a water-tight cover; and when winter

sets in, throw an armful of straw, hay or something of that sort, on the barrel. If the bottom is out of the cask or barrel, it will be better. Cabbage, celery, and other vegetables, will keep in this way as fresh as when taken from the ground. The celery should stand nearly perpendicular, celery and earth alternating. Freedom from frost,

ease of access, and especially freshness, and freedom from rot, are the advantages claimed.

Vegetables—To Clean of Insects.

Make a strong brine of $1\frac{1}{2}$ lbs. of salt to 1 gal. of water; into this place the vegetables with the stalk ends uppermost for 2 or 3 hours; this will destroy all the insects which cluster in the leaves, and they will fall out and sink to the bottom of the water.

Vegetables—Pickle for.

Six quarts of the very best vinegar, one pound of salt, a quarter of a pound of ginger, one ounce of mace, half a pound of shallots, one tablespoonful of Cayenne pepper, two ounces of white peppercorns, and two ounces of mustard seed. Boil all these ingredients well together, and when cold put into a jar. You may add what green vegetables or fruit you like, provided they are fresh. They may be merely wiped to free them from dust.

Vegetables—to Boil.

Vegetables must be carefully cleaned from insects and very nicely washed. Boil them in plenty of water, the water to be boiling before they are put into it, and they should be drained the moment they are cooked enough. If over-boiled they will lose their beauty and crispness. Bad cooks sometimes dress them with meat, which is wrong—except carrots or cabbage with boiling beef.

In order to boil vegetables of a good green color, take care that the water boils when they are put in. Make them boil very fast. Do not cover, but watch them, and if the water has not slackened, you may be sure they are done when they begin to sink. Then take them out immediately, or the color will change. Hard water, especially if chalybeate, spoils the color of such vegetables as should be green. To boil them green in hard water, put a

teaspoonful of carbonate of soda or potash into the water when boiling, before the vegetables are put in.

Jerusalem Artichokes—To Dress.

Clean and pare them, put them in boiling water and milk, with salt, and boil them until they are soft. Pour the water off them, and serve with butter sauce over them, or mix a tablespoonful of flour with a teacupful of cream, season with white pepper and salt, a little nutmeg, and stir until it boils, then pour it over the artichokes.

Artichokes.

Soak them in cold water, and wash them well; put them into plenty of boiling water, with a handful of salt, and let them boil gently for $1\frac{1}{2}$ or 2 hours; trim them and drain on a sieve; send up melted butter with them, which some put into small cups, 1 for each guest.

Asparagus.

Scrape the stalks till they are clean; throw them into a pan of cold water; tie them up in bundles of about 25 each; cut off the stalks at the bottom all of a length, leaving enough to serve as a handle for the green part; put them into a stew-pan of boiling water, with a handful of salt in it. Let it boil, and skim it. When they are tender at the stalk, which will be in from 20 to 30 minutes, they are done enough. Watch the exact time of their becoming tender; take them up that instant. If too much boiled they lose both color and taste. While the asparagus is boiling, toast a round of a quartern loaf, about $\frac{1}{2}$ an inch thick; brown it delicately on both sides; dip it lightly in the liquor the asparagus was boiled in, lay it in the middle of a dish, and lay the asparagus round the dish, the tops inwards. Serve with butter sauce.

Beans—Baked.

The usual way people cook beans is to parboil them; put them in a kettle or pan, set them in the oven to bake, with a piece of fat pork in them. The grease oozes out into the beans, causing a most unwholesome and indigestible mass, destroying all the good flavor of the beans. Now the method for cooking them (which all who have tried it pronounce excellent) is as follows: Parboil as usual, putting in salt to suit the taste. Then put them in a pan and set in the oven to bake, putting in a piece of good, sweet butter—the size of a butternut will answer. Bake until tender and nicely browned over on top. Beans are very nutritious, and cooked in this way are palatable, digestible, and can be eaten by any one. If you want the pork, cook it in a dish by itself.

Another.—Let the beans soak over night. Put on in cold salted water and cook until soft. Drain dry and put them into a pan, stir in a large spoonful of butter, and when this has melted, enough milk to fill the dish one-quarter full. Season to suit taste with pepper and salt. Cover well and bake forty minutes. Remove top and brown.

French Beans—To Boil.

Cut off the stalks, and string them, cut them into very thin slices, and put them into cold water with a little salt; half an hour before dinner put them in boiling water and salt, boil them quickly for half an hour, drain, and dish them immediately; keep them hot, but do not allow them to lie in the water, else they will lose their green color. Serve with butter sauce in a sauce-tureen.

Beans, Green—French Style.

Choose small, young beans, and strip off the ends and stalks, throwing them, as prepared, into a dish full of cold spring water, and, when all finished,

wash and drain them well. Boil them in salted boiling water, in a large saucepan, and drain them, after which put them into an enameled stew-pan, and shake them over the fire until they are quite hot and dry; then add about 3 oz. of fresh butter, and a tablespoonful of veal and chicken broth; the butter must be broken up into small lumps. Season with white pepper, salt, and the juice of half a lemon strained. Stir them well over a hot fire for five minutes.

Beets—To Boil.

Wash them well, taking care not to break the points, as it will spoil the color; put them in a pan, cover with boiling water and boil till tender, which takes about forty minutes, then skin and trim the heads neatly, put them in a jar, and when cold cover them with vinegar. Serve them in slices with a little of the vinegar poured over them.

Another.—Beets must not be cut before boiling, as the juice will escape and the sweetness be destroyed. Select small-sized, smooth roots, wash them nicely, and boil in clear water until tender. When sufficiently cooked, skim them into a pan of cold water, and slip off the skin. Cut them in thin slices, and, while hot, season with butter, salt, pepper and vinegar, and serve. If preferred cold, slice lengthwise and lay in strong, cold vinegar.

Beets—To Stew.

Take a pint of good stock, wash one beetroot, and scrape it clean, and cut it in slices about half an inch thick. Have the stock boiling, with a little salt and pepper in it; put in the sliced beetroot, cover it closely, and let it stew for half an hour; add two tablespoonfuls of vinegar, let it stew another half hour, then dish it neatly, and pour the sauce over it.

To Boil Brussels Sprouts.

Take the quantity required, pick off the withered leaves, and steep them in cold water with salt in it for half an hour; then drain, and put them on in boiling water, with a pinch of soda and a little salt, let them boil for ten minutes, then drain and serve. If to be taken alone—that is, without meat—serve with melted butter in a sauce-
tureen.

Cabbage—Cold Slaw.

Take fresh cabbage—white is preferable—wash, drain it, and cut off the stalks. Shave the head into very fine shreds with a cabbage cutter or sharp knife. Place it in a deep china or earthen dish, and prepare for it the following dressing: To $\frac{1}{2}$ a pt. of cider vinegar add $\frac{1}{4}$ of a lb. of butter, cut in 5 or 6 bits and rolled in flour; add a small saltspoon of salt. Stir well together, and boil in a saucepan. Have ready the yolks of 4 eggs, well beaten. When the mixture comes to a boil, remove it from the fire and stir in the eggs. Pour this boiling hot over the cabbage, stir it thoroughly through with a spoon, and set it in some cool place, to get thoroughly cold before being served at the table.

German Cabbage.

Slice red cabbage and soak in cold water. Put one quart in a saucepan with two tablespoons of butter, one-half teaspoon of salt, one tablespoon finely chopped onion, few gratings of nutmeg and a few grains of Cayenne; cover and cook until cabbage is tender. Add two tablespoons of vinegar, and one-half tablespoon of sugar and cook five minutes.

Cabbage—To Stew.

Parboil in milk and water, and drain it; then shred it, put it into a saucepan, with a small piece of butter, a small teacupful of cream, and seasoning, and stew till tender.

Cabbage, Red—To Stew.

Take off all the outside leaves, slice it as for pickling, put it into a saucepan with a pint of good stock, a little pepper and salt, cover it closely, and stew one hour, then add two table-spoonfuls of vinegar, let it boil for fifteen minutes, and serve hot.

Cabbage Water.

Cabbage water, or any water in which green vegetables have been boiled, should be thrown away out of doors (not down the sink) immediately it is done with, and the vessel rinsed with clean water or it will cause unpleasant smells.

Carrots.

Let them be well washed and brushed, not scraped. An hour is enough for young spring carrots. Grown carrots must be cut in half, and will take from $1\frac{3}{4}$ to $2\frac{3}{4}$ hours. When done rub off the peels with a clean coarse cloth, and slice them in 2 or 4, according to their size. The best way to try if they are done enough is to pierce them with a fork.

Cauliflower.

Cook a cauliflower until tender. Butter a pudding dish and put in the bottom a layer of it. Cover with cream sauce, a little salt and pepper and a little grated cheese. Continue until the dish is full, putting grated cheese and bread crumbs on top. Bake about a half hour.

Cauliflower—To Boil.

Cut them neatly, and lay them an hour or two in salt and water, rinse them in plenty of cold water, put them in boiling water with some salt and a pinch of soda, and boil for fifteen or twenty minutes. When you dish them, take them out of the water with a fork and fish-slice, lay them in the dish, and pour butter sauce over them.

Another.—Having cut off the green part, divide it into 4 parts; put it into boiling milk and water, and skim the saucepan well. When the stalks are tender take them up carefully and put them to drain. Then put a spoonful of water into a saucepan, with a little flour, a $\frac{1}{4}$ of a lb. of butter, and pepper and salt mixed well together. Take half the cauliflower and cut it as for pickling; put it into the saucepan for 10 minutes. Place the stewed cauliflower in the middle, and the boiled round it, and pour over it the butter in which the one-half was stewed.

Cauliflower au Gratin.

Take away the green stalks from the cauliflowers, divide them into quarters, throw them in cold water with a little vinegar in it, to draw away the insects, then put them on in boiling water with a little salt in it, and let them boil about fifteen minutes. Drain on a sieve, and place them neatly on a vegetable dish, flowerets up. Mix one ounce of butter with one ounce of flour, put it on in a saucepan to melt, then add half a pint of milk, season with pepper and salt, and let it boil five minutes, stirring constantly. Have about two ounces of cheese grated, mix an ounce and a half with the sauce, pour it over the remainder of the cheese on the coating of sauce, then bread crumbs, with here and there a morsel of butter. Put the dish in a quick oven till nicely browned, and serve hot.

Cauliflower—In Milk.

Choose those that are close and white, cut off the green leaves, and look carefully that there are no caterpillars about the stalk; soak an hour in cold water with a handful of salt in it; then boil them in milk and water, and take care to skim the saucepan, that not the least foulness

may fall on the flower. It must be served very white and rather crisp.

Stewed Celery.

Cut the celery, after cleaning, into small pieces. Cover with boiling water and simmer for a half hour. Season with salt. Drain off the water and cover with cream sauce.

Green Corn Pudding.

One dozen ears (or one can) corn, one quart milk, one tablespoon sugar, two tablespoons butter (melted), four eggs, well beaten; mix all thoroughly and bake half hour or until custard is set. Serve as a vegetable.

Cucumbers—To Green.

There is no way to impart a green color to cucumbers, that would not be injurious to health, except by the use of green leaves, like those from the grape vine. Possibly sap green, which is a preparation from the juice of buckthorn berries, would answer the purpose if it could be obtained here. Verdigris can be detected in nearly all the pickles of commerce; but its use is highly objectionable, as it is a poisonous acetate of copper. Pickles may be colored with it, if the people place a higher regard on the color of the condiment they eat than on their health. Nearly all the shades of green are produced from some combination of arsenic, but this fact does not prevent the use of them for coloring confectionery.

To Dress a Cucumber to be Served with Salmon.

Peel and slice the cucumber very thin; sprinkle the slices with pounded salt and sugar; let them lie for two hours, and pour off the juice. Have a little vinegar, a tablespoonful of salad oil, and beat up together, pour it over the cucumber, and sprinkle a little white pepper over it.

Baked Egg Plant.

Cut the plant in two lengthwise, take out the pulp with a spoon, chop the pulp fine, add to it one teaspoonful of salt, one-fourth teaspoonful of pepper and two tablespoonfuls of butter. Cook all in a frying-pan ten minutes, then add one-half a cup of stock and one cupful of crumbs. Sprinkle the inside of the shell with pepper and salt and fill with the cooked mixture. Sprinkle crumbs over the top thickly and put small pieces of butter on top. Place in bake dish and put in one quart boiling water. Bake one hour.

Breaded Egg Plant.

Slice nearly one-half inch thick; pare each slice and lay in salt water one hour. Wipe dry and dip in beaten egg, then in rolled cracker and fry to a fine brown in salted lard or drippings.

Mushrooms.—To Stew.

Trim and rub clean with a bit of flannel dipped in salt, $\frac{1}{2}$ a pint of large button mushrooms; put into a saucepan 2 oz. of butter; shake it over the fire till thoroughly melted; put in the mushrooms, a teaspoonful of salt, half as much pepper, and a blade of mace pounded; stew till the mushrooms are tender, then serve them on a very hot dish.

Onions—Boiled.

Take the outside skin from white onions as uniform in size as possible, lay them in cold salt and water for 1 hour, and then boil them in milk and water until thoroughly tender; lay them in a deep dish, and pour over them melted butter.

Onions—Roasted.

These should be cooked in their skins; but before putting them into the oven brush off all grittiness. Place in a moderate oven, cooking gradually until nearly done; then quicken the oven and brown. Serve with plenty of fresh butter.

To Stew Onions with White Sauce.

Peel as many large onions as you require, put them into a saucepan, and cover them with white stock, a little white pepper and salt; cover them, and let them stew for an hour. Mix a small teacupful of cream with a tablespoonful of flour; add this to the onions, shake it well until it boils, and dish the onions with the sauce over them. If you wish to have them stewed with a brown sauce, brown two ounces of butter, add a pint of good stock, with salt and pepper, put in the onions and stew them for an hour. Dish them hot with the sauce over them.

Parsnip Balls.

Mash a pint of boiled parsnips. Add two tablespoonfuls of butter, a teaspoonful of salt, pepper, two tablespoonfuls of cream or milk. Mix all together and cook until thoroughly heated through; then add one well beaten egg and set away to cool. When cold form into small balls. Roll in beaten egg and cracker crumbs and fry in hot lard.

Baked Parsnip.

A pint of mashed parsnip, a good sized piece of butter, salt and pepper, three tablespoonfuls of milk or cream. Put into a buttered pudding dish, cover with bread crumbs and brown in the oven.

Parsnips—To Boil.

Wash the parsnips, scrape, boil tender, and then slice and brown on a gridle, with butter to prevent sticking. Carrots are good, cooked in the same way.

Fried Parsnips.

Clean with a vegetable brush and scrape. Boil gently forty minutes. When cold cut into slices one-third of an inch thick. Season with salt and pepper, dip in butter and then in flour. Have equal parts of dripping and but-

ter hot in a frying-pan; lay in enough slices to cover the bottom of the pan. Fry brown on both sides. Serve hot.

Parsnips—Preserving.

The almost universal practice among farmers is to allow their parsnips to remain in the ground through winter, just where they were grown. We believe the quality of this root is improved by being frozen, or at least kept cool, but it is not necessary to leave them in the open garden during winter, where, if the ground remain frozen, they cannot be got at until it thaws in spring, and then used in a very few weeks or not at all. If the roots are dug up late in the fall, leaving all the tops on, then carefully heeled in thickly together in rows, after which cover with a little coarse litter, they can be reached whenever wanted during winter.

Peas—How to Cook.

Garden peas, when young, quickly grown and fresh, have a delicious characteristic flavor of their own, are rather sweet, and almost crisp when eaten—and maintain these attributes unimpaired if simply boiled in salt water. One of Henry Ward Beecher's favorite dishes was stewed peas. They were cooked fresh from the pod and sent to the table in the simplest manner—merely seasoned with salt, a pat of sweet butter and a pinch of freshly ground pepper. In Mr. Beecher's recipe water is not used for cleansing the peas, since they are so carefully preserved from all contamination by their perfect covering. The same process is equally applicable to French beans.

Peas, Green—To Boil.

Shell and wash the peas, put them into a saucepan in plenty of boiling water; add salt, a teaspoonful of pounded loaf sugar, and boil them twenty minutes, when they will be

tender, if young; if old, they will require a longer time. Drain them in a colander, and dish immediately. If peas are allowed to stand in the water after being boiled, they lose their color.

Green Peas—To Stew.

Put into the saucepan a quart of peas, a lettuce, and an onion sliced, butter, pepper, salt, but no more water than remains about the lettuce after washing. Stew 2 hours very gently. When to be served, beat up an egg and stir it into them, or a little flour and water.

Peas—To Stew.

Take a quart of shelled peas, a large onion, or 2 of middling size, and 2 lettuces cut small; put them into a saucepan with half a pint of water; season them with a little salt, a little pepper, mace and nutmeg. Cover them close, and let them stew $\frac{1}{4}$ of an hour; then put in $\frac{1}{4}$ of a pound of fresh butter rolled in a little flour, a spoonful of catsup, and a small piece of butter as big as a nutmeg; cover them close and simmer gently an hour, often shaking the pan.

Young Peas and Lettuce—To Stew.

Take two heads of cabbage lettuce, pick off the outside leaves, and lay them in salt and water for an hour; cut them down in slices, run cold water on them, put them in a saucepan with a teacupful of rich gravy, shake in a little flour, some pepper and salt, a table-spoonful of sugar, one quart of green peas, and let them stew closely covered at the back of the range, until the peas are soft and sauce much reduced; add a little cream, shake the sauce pan, but do not stir it. Serve hot on a dish by itself, or under chickens, sweet-breads, or any dressed meats you choose.

Potatoes—To Boil.

Put them into a saucepan with scarcely sufficient water to cover

them. Directly the skins begin to break, lift them from the fire, and as rapidly as possible pour off every drop of the water. Then place a coarse (we need not say clean) towel over them, and return them to the fire again until they are thoroughly done, and quite dry.

Potatoes—Broiled.

Cut cold, boiled potatoes in slices a third of an inch thick, dip them in melted butter and fine bread crumbs. Place in a double broiler and broil over a fire that is not hot. Toast them until a light brown

Duchess Potatoes.

Cut cold boiled potatoes into dice. Season with salt, pepper and melted butter and a little flour. Put on to a baking sheet and put into a hot oven for about fifteen minutes.

Potatoes—Escalloped.

Cut cold, boiled potatoes into thin slices; season with salt and pepper. Butter a pudding dish, cover the bottom with cream sauce, then a layer of potatoes. Continue until the dish is full. Cover with fine bread crumbs, pour a little melted butter over the top and cook for about fifteen minutes.

Potatoes—To Fry.

To fry raw potatoes properly, they should be pared, cut lengthwise into slices an eighth of an inch in thickness, dropped into a pan over the fire containing hot beef drippings, turned frequently, nicely browned all over, but never burned.

Potatoes—French Fried.

Slice the potatoes into narrow slices. Let them stand in cold water for a short time. Fry in boiling lard until a nice brown. Salt them to taste.

Potatoes—Hashed Fried.

Chop cold boiled potatoes in small even pieces; do not mash them. Moisten with milk or cream and season with

salt and pepper. Put butter into a spider, and when hot put in the potatoes. Press firmly into a cake so that they will brown uniformly on the under side. When browned turn out on a dish without breaking them.

Potatoes—Mashed.

Potatoes for mashing should be as nicely boiled as if they were intended to be eaten without further preparation; only they should be dressed a little more, though care should be taken not to let the water get into them. The farinaceous part must be pounded up, with a small quantity of the freshest butter, the yolk of an egg well beaten, and a little pepper and salt; add, if possible, a little cream, and put the mashed potatoes into the oven to brown them.

Potato Puff.

Two cupfuls of mashed potato, three tablespoonfuls of melted butter. Beat to a cream before adding anything else. Put into this two eggs beaten light and a teacupful of milk or cream. Salt to taste. Beat all well. Pour into a baking dish and bake until a nice brown.

Saratoga Chips.

Slice the potatoes thin into cold water. Let them stand for some time. Fry a few at a time in boiling hot lard. Lay them on coarse brown paper for a short time. Salt them as they are taken out.

Potato Scones.

Mash boiled potatoes till they are quite smooth, adding a little salt; then knead out with flour, or barley-meal, to the thickness required; toast on the griddle, pricking with a fork to prevent them blistering.

Potato Snow.

Pick out the whitest potatoes, and put them on in cold water; when they begin to crack, strain and put them in

a clean saucepan on the stove till they are quite dry, and fall to pieces; rub them through a wire sieve on the dish they are to be served in, and do not disturb them afterwards.

Potatoes—Souffle.

Wash and brush eight potatoes of an ordinary size, flatten them at one end by cutting a slice from each, and roast them in the oven. When quite ready take them out, cut a slice from the other end of each, scoop out the potatoes, taking care to keep the skins whole, and put them through a colander into a basin. Beat them till very light, with an ounce of butter, half a gill of cream, and one egg; add ketchup, pepper and salt to taste. With this mixture, refill the skins, sprinkle a little grated cheese on the top, and put them in the oven till they rise and get brown. Serve hot on a table-napkin, and garnish with parsley.

Spinach—To Boil.

Pick it carefully, lay it in water, and when you are to boil it, wash thoroughly in plenty of cold water; have a pan with boiling water, some salt, and a bit of soda; put in the spinach, boil it twenty minutes, pour it into a colander, then run cold water on it; set the drainer in a basin, and with a beater or wooden spoon beat it perfectly smooth; put an ounce of butter in a small sauce pan, put in the spinach, two tablespoonfuls of cream, a little pepper and salt; put it on the fire, and stir till very hot. When dished, it is marked in squares with the back of a knife; if for supper, serve with poached eggs on the top.

Summer Squash—To Cook.

Take them before the seeds begin to harden, wash or wipe them clean, remove the stem and cut in pieces; boil till quite soft; pour off all the water you can; mash as fine as possible, after which put it into a clean cloth or bag,

and squeeze out the rest of the water. Turn out into a dish and season with salt, butter, or thick, sweet cream, and pepper, to your taste.

Escalloped Squash.

One quart of mashed squash. Add one tablespoonful of butter, one of milk, a little salt and pepper and the raw yolk of one egg. Stir all together and put in a baking dish; smooth the top and cover with fine bread crumbs. Bake one-half hour.

Baked Tomatoes.

Wipe and remove a thin slice from stem end of six smooth, medium sized tomatoes. Take out seeds and pulp and drain off most of the liquid, add an equal quantity of cracker crumbs. Season with salt, pepper and a few drops of onion juice, and refill tomatoes with mixture. Place in a buttered pan, sprinkle with buttered crumbs, and bake twenty minutes in a hot oven.

Tomatoes—Browned.

Take large, round tomatoes and halve them; place them, the skin side down, in a frying-pan, in which a very small quantity of butter has been previously melted; sprinkle them with salt and pepper and dredge them well with flour; place the pan on a hot part of the fire, and let them brown thoroughly; then stir them and let them brown again, and so on until they are quite done. They lose their acidity, and the flavor is superior to stewed tomatoes.

Escalloped Tomatoes.

One quart of fresh or canned tomatoes, one pint of bread crumbs, two tablespoonfuls of butter, two of sugar, a small tablespoonful of salt, and one-fourth spoonful of pepper. Cut a layer of tomato in a bake dish. Sprinkle with sugar, salt and pepper; now put over a layer of crumbs, then bits of butter; continue this until all the material is used, having crumbs as

the last layer. If fresh tomatoes are used, bake forty-five minutes, but if canned, only one-half an hour.

Tomatoes au Gratin.

Take the number of fresh tomatoes required, cut each through the middle crosswise, squeeze out the seeds and water, taking care to keep the outside of the tomatoes whole, then stuff them with minced ham, mixed with a few chopped mushrooms previously cooked, some bread crumbs; season with a little pepper and salt, and moisten with an egg. Place them on a baking-dish, scatter bread crumbs over them, and on each a morsel of butter, then put them in the oven for about fifteen minutes.

Tomato Toast.

Run a quart of stewed ripe tomatoes through a colander, place in a porcelain saucepan, season with butter, pepper and salt and sugar to taste; cut slices of bread thin, brown on both sides, butter and lay on a platter, and just as the bell rings for tea add a pint of good sweet cream to the stewed tomatoes and pour them over the toast.

Turnips—To Cook.

Full grown turnips will take about 1½ hours' gentle boiling; if you slice

them, which some people do, they will be done sooner; try them with a fork; when tender, take them up and lay them on a sieve till the water is thoroughly drained from them. Send them up whole; do not slice them.

Creamed Turnips.

Wash turnips and cut in one-inch squares. Cook three cups of the squares in boiling, salted water, about twenty minutes, or until soft. Drain, and add one cup of white sauce.

Turnips with White Sauce.

Cut the turnips into slices three-quarters of an inch thick. Cut into small pieces. Boil in boiling salted water until tender. Drain and pour white sauce over them, made with a cup of milk or cream, thickened with a little flour and seasoned with butter, salt and pepper. Carrots can be cooked this way also.

To Dress Young White Turnips.

Clean and peel them, and boil in salt and water; when they are tender, pour melted butter over them; or they may be stewed in milk till tender, thickened with cream and flour mixed together. Season with white pepper and salt. Dish them and pour the sauce over them.

BREAD.

Bread.

While certain rules can be laid down as to quantity, time, and heat, an ounce of practice is worth more than a pound of precept in bread-making. Making good bread is not a gift, but arises from the care taken to observe every detail, good flour, good yeast, and a well heated oven.

Bread—To Make Old-fashioned

To make the sponge, which should be in the evening, take a deep vessel, put in three quarts of warm water, one

cup of yeast, stir in flour enough to make a stiff batter, and set in a warm place. In the morning put in two quarts of warm water, salt it (if the dough inclines to be running, from bad flour, put in one teaspoonful of powdered alum dissolved in warm water). Knead the dough till it is smooth, and cover it with a cloth in a deep vessel; keep it warm (not hot), let it rise, and then mold into six loaves, let it rise again till light, and then bake.

Bread—French.

Put one pint of milk into three quarts of water. In winter let it be scalding hot, in summer little more than milk-warm; put in salt sufficient. Take one and one-half pints of good ale-yeast, free from bitterness, and lay it in one gallon of water the night before. Pour off the yeast into the milk and water, and then break in rather more than one-fourth pound of butter. Work it well till it is dissolved; then beat up two eggs in a basin, and stir them in. Mix about one and one-half pecks of flour with the liquor, and, in winter, make the dough pretty stiff, but more slack in summer; mix it well, and the less it is worked the better. Stir the liquor into flour, as for pie-crust, and after the dough is made cover it with a cloth, and let it lie to rise while the oven is heating. When the rolls or loaves have lain in a quick oven about one-fourth of an hour, turn them on the other side for about one-fourth of an hour longer. Then take out and chip them with a knife, which will make them look spongy, and of a fine yellow, whereas rasping takes off this fine color, and renders their look less inviting.

Bread—Unfermented.

Take the iron pans now in use, and which can be obtained at almost any hardware store; or, if not obtainable, common patty tins will do; saturate a clean cloth with oil or butter, with which rub the iron or tins, and set them on the stove to heat; then take sweet skim-milk (not more than twenty-four hours old) warmed to the temperature of new milk or warm water, with two spoonfuls of cream to one pint of water, and stir in fine flour until you have a batter a very little thicker than for griddle cakes; or if unbolted flour (which is much better) is used, until it will heap up slightly on the spoon; heat your dishes so that they will siss

when the batter is put in, and have your oven well heated, until the cakes are puffed up and lightly browned. Then close the draft and bake slowly for fifteen or twenty minutes, and you will have the best bread made.

Bread—Graham.

Take one quart of warm water, one teacupful of good yeast and one table-spoonful of salt. Put into a pan, make a stiff batter with flour, which has been sifted, and keep it very warm until it is light; then take flour which has been half sifted to thicken it; knead it well, but do not let it get cold; let it rise again. Then work it down, and put in one teacupful of sugar and a piece of butter the size of an egg. Knead it one-half an hour, put it in pans, and let it rise very light. Bake three-quarters of an hour in a moderate oven.

Bread—Oxygenated.

An article of diet termed oxygenated bread has been introduced into England, and has found considerable favor. For its preparation the bread is placed under an air-pump, and the carbonic gas and atmospheric air exhausted, and the oxygen admitted in sufficient quantity to fill the pores of the bread. An inconvenience attending its use is its tendency to become moldy. This can be obviated by avoiding the use of yeast, or by placing a paper saturated with a solution of carbonic acid on the top of the box in which the bread is preserved, this scarcely affecting the taste of the bread. A single mouthful of oxygenated bread is said to remove the want of appetite, and to induce an agreeable sensation in the epigastrium in dyspeptic attacks. In the case of gastric disturbances arising from nervous depression, incomplete assimilation, or scrofulous affections, it is said that the use of this bread produces a very sensible improvement in the course of one or two weeks.

Bread—To Discover whether it is Adulterated with Alum.

The bread must be soaked in water, and to the water in which it has been soaked a little of the solution of muriate of lime must be added, upon which, if any alum be present, the liquid will be pervaded with milkiness; but if the bread be pure the liquid will remain limpid. Rationale: Sulphuric acid has a stronger affinity for lime than for the alumina and potass, with which it forms alum; it therefore quits those bodies to form sulphate of lime with the lime of the test, which produces the milkiness.

Bread—Apple.

(French method). Put one-third of boiled apple pulp to two-thirds of wheat flour, and ferment it with yeast for twelve hours. It is said to be light and palatable.

Bread—Brown.

(Oneida.) 1 qt. of Indian meal, 1 qt. of rye meal, 1 teaspoonful of soda, $\frac{1}{2}$ a cup of molasses, with a slight sprinkling of salt. A little sour milk improves it. Mix to the consistency of pancake batter. Bake from 1 hour to $1\frac{1}{2}$ hours, according to the heat of your oven.

Bread—Corn.

Take 1 pt. of corn meal, (white is best) and stir into it 1 teaspoonful of dry saleratus and $\frac{1}{2}$ a teaspoonful of salt; then add 2 eggs, 1 pt. of sour milk, and 3 tablespoonfuls of sour cream; beat about 5 minutes and put it (about $\frac{1}{2}$ an inch deep) in the pans to bake. Use pie pans to bake it in. If you have no cream, use about a tablespoonful of butter, drippings, or lard.

Bread—Potato.

Take four or five good mealy potatoes, and after boiling peel and mash well; add a large spoonful of flour and enough hot water to make a thin bat-

ter; when cool enough add a small quantity of good yeast and a spoonful of sugar; set to rise in a moderately warm place, say by the stove or fire-place; it rises very quickly. When risen, take two large spoonfuls of it for 1 pt. and $\frac{1}{2}$ of flour, a small spoonful of lard or butter, a $\frac{1}{2}$ pt of milk, and hot water enough to make into a stiff batter, (over night); beat well; next morning work it well into a smooth dough and make into rolls or loaves; set in a warm place to rise again, and bake in a quick oven. Do not forget a teaspoonful of salt and one of yeast powder sifted into the dry flour that you work into the batter in the morning; a tin bucket is best, with a tight cover, and a towel between it and the bucket. If your flour is good, there is no better recipe than this; no hops are needed.

Bread—Rice.

Take one pound of rice and boil it gently to a thick paste, which, when mixed with the usual quantity of yeast, will be sufficient to make five pounds of wheat or barley meal into a dough. When risen, bake it in the usual way.

Bread—Rye.

Scald 1 cup of flour with 1 cup of boiling water, $\frac{1}{2}$ a teaspoonful of salt, 4 tablespoonfuls of molasses, a large cup of yeast, 3 cups of rye, 6 cups of flour, 3 cups of warm water; stir well with a spoon, set it to rise twelve hours.

Bread—Sago.

This light and nutritious article for invalids is made in the following manner: two pounds of sago to be well soaked in water or milk for several hours; mix it with as much flour; add saleratus and good yeast, (a little Indian meal, if liked); when well raised give it a handsome bake. It is delicious, healthful and cheap.

Bread—To Keep Moist.

Place in the bread pan a board pierced with holes, and so supported as to be a couple of inches from the bottom of the pan; let there be an inch of water in the pan; put the bread on the board, and cover the pan with the lid. The inclosed air will then prevent the bread from becoming too dry.

Bread—To Serve at Table.

First, the bread plate should be of wood, perfectly round, and with a flat surface. The high-priced ones are beautifully carved. Next, a bread-knife, which has a wooden handle to match the plate. The blade should be thin and long, it may be notched, and the edge kept well sharpened. Bread dulls a knife very much.

Place on the table the bread plate with a loaf of bread on it—two loaves are better, one of white bread, the other of brown—and the knife. When it is time to serve the bread, the one nearest the bread-plate asks each one which kind is preferred, and if thick or thin slices. Where the table is large, a small plate is used to pass it on. In this way every one at the table has the bread cut to his or her liking. The bread is cut only as wanted, and no more cut than is used. The outside piece of either bread or meat must not be served, unless some one manifests a preference for it. Not much strength is required to cut meat and bread. The muscles of the wrist and hand should do the work, and not those of the arm, elbow, or shoulder.

Delicious Parker House Rolls.

To make rolls that will literally melt in the mouth and are both delicate and toothsome, scald one pint of milk, add to it one heaping tablespoonful of butter and an even teaspoonful of salt. Then stand aside until lukewarm. Sift one quart of flour into a large earthen bowl, mix it with a table-

spoonful of granulated sugar, and one cake compressed yeast dissolved in a little warm water. Stir together the flour and the warm milk, adding more flour as required to make a stiff dough. Cover tightly and let it stand in a warm, not hot, room over night. In the morning knead the dough thoroughly, then make into small turnover rolls, and let stand in a warm place until very light; then bake in a quick oven for fifteen minutes.

Southern Egg Bread.

Few Northerners know or appreciate this delicious breakfast dish. To be made at its best the genuine southern meal should be used, but even if that is not to be obtained, the bread is exceedingly tempting, and worth the trial. Scald one and one-half cupfuls of corn meal thoroughly and let stand until cool, but not cold. Beat the yolks and whites of three eggs separately and add the yolks to one pint of milk. Stir the milk and eggs into the scalded meal slowly, and when well mixed add half a teaspoonful of salt and two teaspoonfuls of baking powder. Lastly, whip in the well beaten whites of the eggs and pour into a deep earthen dish that has been well greased. Bake in a moderate oven from half to three-quarters of an hour. Serve from the dish in which it is baked with a large spoon. The bread should be firm at the bottom, but soft, like rich custard, at the top.

Boston Brown Bread.

No hot bread is more tempting or more wholesome than the Boston brown bread at its best. To make it as it is made at home, it is necessary to obtain rye meal in place of the flour which is ordinarily used, but the result amply repays the trouble, which need not be excessive, as the meal can usually be found at feed stores of the larger and better sort. Mix together

one and one-half pints of the rye meal and of southern corn meal. Stir into them one teaspoonful of salt and one cup of molasses. Mix all together with one and one-quarter pints of hot milk, and then add one heaping teaspoonful of baking soda dissolved in a little boiling water. Pour into a well buttered mold, cover tightly and steam for four hours. Serve hot with butter or cream.

Potato Rolls.

The most delectable luncheon or breakfast rolls known to the Virginia cook have a foundation of potatoes, and involve considerable effort, but are so entirely satisfactory as to make it amply worth while to incur all the trouble. Boil six medium-sized potatoes and mash fine. Add to them one teaspoonful each of sugar and of salt, one large tablespoonful of butter and lard mixed. Stir well together and let stand in a warm place four or five hours until very light. Mix with flour until no more can be worked in. Knead and let raise for about five hours or longer, in a warm place, where the temperature is not quite so high. Then make into turnovers and stand quite near the stove until light. Bake in a quick oven.

New England Muffins.

Few forms of hot bread are more delicious than delicate muffins. The following recipe gives directions for making them quickly and can be relied upon to give satisfaction: Sift two cups of flour with one even teaspoonful of salt. Work into it two tablespoonfuls of soft butter and two of granulated sugar. Add one cup of milk, one egg, well beaten, and one teaspoonful of baking powder. Bake in a quick oven in muffin rings or gem pans.

Wheat Gems.

Risen breads have certain advantages over other sorts. To make real-

ly perfect wheat gems scald one pint of milk, add to it one tablespoonful of butter and let stand until tepid. Then add one-half cake of compressed yeast dissolved in a quarter of a cupful of warm water, three cupfuls of flour and one teaspoonful of salt. Beat well, cover and let stand in a warm place until morning. A half-hour before breakfast beat two eggs, the white and yolks separately, and add first the yolks, then the whites to the risen mixture. Beat vigorously and bake in gem pans in a quick oven.

Bread Sponge.

Two cups of warm water, one tablespoon of lard and one of sugar, four tablespoonfuls lively yeast, one-fourth teaspoonful of soda, two cups of flour. Mix together water, lard, soda and sugar. The sugar should be warm enough to melt the lard. If hot, it will spoil the yeast. Pour little by little on the flour, stirring to a smooth batter. At last, put in the yeast and beat all hard two minutes. Set to rise in a bowl covered with a clean cloth. It should stand in a warm place in winter, and in summer out of a draught, but not in a hot room.

Steamed Brown Bread.

Two and one-half cups of Indian meal, two cups rye meal, one cup flour, one cup molasses, one teaspoon soda, one of salt; mix with warm water; steam three or four hours. The batter should be quite stiff.

Johnny Bread.

Three cups Indian meal and one cup white flour; one-third cup of molasses, salt, one pint sour milk or buttermilk, and two beaten eggs. Dissolve soda in milk and make a batter with the remaining ingredients. Spread in a small dripping-pan and bake in a quick oven. Eat with butter and syrup.

Togus Bread.

Three cupfuls of sweet milk, one of sour milk, three cupfuls Indian meal and one of flour, half a cupful of molasses, one teaspoonful of saleratus, one of salt. Steam for three hours.

Apple Bread.

A very light pleasant bread is made in France by a mixture of apples and flour, in the proportion of one of the former to two of the latter. The usual quantity of yeast is employed as in making common bread, and is beaten with flour and warm pulp of the apples after they have boiled, and the dough is then considered as set; it is then put in a proper vessel, and allowed to rise for eight or twelve hours, and then baked in long loaves. Very little water is requisite—none, generally, if the apples are very fresh.

Apples and Bread and Milk.

For a summer luncheon, a bowl of rich milk and bread may be pleasantly varied by the addition of a ripe sweet apple, pared and thinly sliced. If the fruit is not thoroughly ripe and mellow, it is improved by slow baking until quite soft.

Virginia Corn Bread.

One cup of sour milk (buttermilk preferred), half a teaspoonful of soda dissolved in milk, two tablespoonfuls of melted butter, one pint of cornmeal, to which should be added a pinch of salt. Make a batter of these ingredients and have a square tin well greased and hot (this is very important), put in the batter and bake twenty minutes. Serve immediately. Corn bread should not be allowed to stand.

Pulled Bread.

Take the crumb out of a hot loaf of bread, and divide it into rocky-looking pieces by pulling it to pieces quickly with the fingers. Place these pieces on a tin lined with paper and bake

them over again to a light brown. Do them in a quick oven to insure their being very crisp.

Panada Bread.

Soak a few thin pieces of stale, light and well-baked bread in hot water, so as to form a pulp of suitable consistence. Simmer it gently, with some little addition of water from time to time as it thickens; then add two or three tablespoonfuls of warm milk, a little loaf sugar, and a few grains of salt. The objection to this bread-pap, as commonly used, is that nurses are sometimes apt to make it too thick.

Brown Bread.

Scald one pint brown flour; make it thick as mush; add half a cup of yeast and let this sponge stand over night. In the morning mix it up with white flour and sweeten to taste. This quantity makes two loaves. It requires longer to bake than white bread.

Steamed Graham Bread.

One and three-fourths cups of graham flour, three-fourths cup of corn meal, one and one-half teaspoonfuls of soda, one teaspoonful of salt, one-half cupful of molasses, one and two-thirds cups of milk. Steam in melon mold one and one-half hours.

Sour Milk Biscuit.

One pint rye flour, one pint wheat flour, half a teaspoonful of soda, a tablespoonful fat, and salt. Make as you do other biscuit.

Drop Biscuit.

One pint sour milk, teaspoonful of soda dissolved in the milk, tablespoonful of butter, tablespoonful of white sugar, a little salt, and sufficient flour to make it stiff enough to drop. Drop spoonfuls close together on a buttered tin, and bake.

Graham Biscuit.

Three cups graham flour, one cup of white flour, one cup of milk, one cup

warm water, one tablespoonful lard, one heaping tablespoon of brown sugar or molasses, one teaspoon of salt and one of soda, two teaspoons of cream of tartar. Sift soda and cream of tartar into flour. Chop the lard into this thoroughly. Lastly, wet up with milk, molasses and water, handling as little as possible. Roll out into sheet. Cut into round biscuit and bake in steady, quick oven.

Milk Biscuit.

Take one pound of flour, one-fourth of a pound of butter, eight tablespoonfuls of yeast, and half a pint of new milk. Melt the butter in the milk, put in the yeast and some salt, and work into a stiff paste. When light, knead it well, roll it out an inch thick, cut out with a tumbler, prick them with a fork, and bake in a quick oven.

Potato Biscuit.

One cup each of butter, sugar, milk, hot mashed potatoes (free from lumps), one cup yeast and two eggs; mix with enough flour to make a good batter; let rise, and add as much flour as can be stirred in with a spoon; let rise again, roll out to half an inch thick, cut in small round cakes, put two together, and when light, bake.

Gems.

They are cheap, easily made, wholesome and palatable. Graham flour and water are stirred together to the consistency of a thick pancake batter, and baked in the iron or tin gem-pans. Gems, whether of graham meal, fine flour or corn meal, should be put into a hot oven. Success depends on this. Fine flour and sweet milk, (skimmed milk is good enough), well beaten together, rather thicker than the batter, make a very sweet and good kind of warm bread. Corn bread of the best kind can be made without eggs or shortening, or sweetening. Simply scald the meal with boiling water, add

a little salt, stir well and bake quickly in the gem pans. We thought the Graham and white gems must have salt, until we found that its absence was not observed, and then we discarded it, as it seems an unreasonable amount of salt is eaten under the plea of a little salt being necessary.

Graham Gems.

Two cups of graham flour, one cup of white flour, two teaspoonfuls of baking powder, pinch of salt, sift together; two cups of sweet milk, one egg, one tablespoonful of molasses, one tablespoonful of sugar. Heat the gem pans before putting in the mixture.

Another—One cup of sour, or buttermilk, one-half teaspoonful of soda, one tablespoonful of molasses, two tablespoonfuls of white flour, one egg beaten lightly, one-half teaspoonful of salt; graham flour to thicken until batter drops from the spoon.

Hot Rolls.

Two quarts of flour, rub in a tablespoon of butter or lard, one pint cold boiled milk, one-half cup of yeast, one-half cup sugar, salt. Make a hole in the flour, stir milk, yeast, sugar and salt together and turn in the hole. Brush flour over the top and let it stand till morning; mix and let stand till noon in a warm place. Make into rolls and keep rather cool till tea-time and bake.

Sally Lunn Gems.

One egg, two teaspoonfuls of sugar, two of butter, one cupful of milk, two cupfuls of sifted flour; beat sugar and butter to a cream, add the milk and flour and beat very light. Bake in hot gem pans.

Sally Luns.

Two pounds of flour, two ounces of butter and one ounce of sugar. Rub them well together. Take four tablespoonfuls of yeast mixed with a

little warm water. Set the yeast to rise, and when it rises beat up with it a gill of cream and some milk (or all milk, if new, will do), and the yolks of four eggs. Warm this a little. Add it to the dough and work it all together. The dough must not be as stiff as bread dough. Mold with your hands in small round cakes, lay them on an iron baking plate to rise in a warm place; bake them in not too hot an oven. They will take about an hour, and are eaten cut open and buttered. After they are buttered they should be closed and returned to the oven for a minute or two.

Fried Rye Muffins.

Take three-fourths cup rye meal, the same of flour, one half teaspoonful of soda and a teaspoonful of cream of tartar, add these to one teaspoonful of sugar, one of salt, one egg and one-half cup of milk. Mix in order given and drop from teaspoon into hot fat. Cook until thoroughly well done.

Hominy Muffins.

Two cupfuls of cold, boiled hominy, three eggs, three cupfuls of sour milk (sweet can be used), one teaspoonful of cream of tartar, two teaspoonfuls of salt, half cupful of melted butter, two tablespoonfuls of sugar, one scant cupful of flour, one teaspoonful of soda. Beat the hominy smooth, add milk, butter, salt, and sugar, then eggs, then soda dissolved in hot water, and last, the flour.

Muffins.

One pint of milk, 1 tablespoonful of butter, 1 pint of flour, a small teaspoonful of salt, 3 eggs, the whites and yolks beaten separately and very stiff; a small teaspoon even full of soda; add the whites last, beat smartly and perfectly free from lumps. Butter the griddle, and bake in well

buttered rings. When the bottom is done, turn over the rings and bake the top, or put the rings on a well-buttered bake-pan, and bake in a quick oven.

Another.—Half cupful of melted butter, one tablespoonful of sugar, two cupfuls of sweet milk, three cupfuls of flour, three teaspoonfuls of baking powder. Bake in warm muffin pans.

Jolly Boys.

Sift one and one-half tablespoonfuls of yellow cornmeal, two tablespoonfuls of white flour, one tablespoonful of sugar, one saltspoonful salt and one teaspoonful of baking powder. Beat one egg and add to the dry mixture with enough milk to make a drop batter; stir in a teaspoonful of melted butter. Beat well and drop small spoonfuls into boiling lard, cooking carefully. Eat with syrup.

New England Pop-Overs.

Beat whites and yolks of two eggs separately; add the yolks to two cups of sweet milk and stir in this two cups of flour, sifted with a teaspoonful of baking powder and one of salt; add the whites and beat briskly. Pour into greased muffin pans, which have been previously heated. Do not have them more than half full. Bake in a hot oven. Serve at once.

Cake—Corn.

1 pt. of buttermilk, 1 pt. of corn meal, 2 beaten eggs, 1 teaspoonful of soda; beat well together and bake in shallow tin pans. Increase quantities for more than 4 or 5 persons.

Another.—A pt. of buttermilk or sour milk, a pt. of corn meal, 1 egg, a teaspoonful of soda, 1 of salt, 2 of sugar or molasses. Dissolve the soda in a little warm water, and add it the last thing. Bake $\frac{1}{2}$ an hour in a quick oven.

Indian Pone.

Put 1 quart of water in a pot; as soon as it boils stir in as much Indian meal as will make a very thin batter. Beat it frequently while it is boiling, which will require ten minutes; then take it off, pour it in a pan, and add 1 oz. of butter, and salt to taste. When the batter is lukewarm, stir in as much Indian meal as will make it quite thick; set it away to rise in the evening; in the morning make it out in small cakes, butter your tins, and bake in a moderate oven. Or the more common way is to butter pans, fill them $\frac{3}{4}$ full, and bake them. The cake requires no yeast.

Corn Cream Cake.

Take a quart of sour cream and buttermilk, each one-half, mixed with sufficient bi-carbonate of soda to sweeten it, add corn meal enough to the milk and cream to thicken it to the consistency of pound cake, stirring it in. Put it an inch thick in floured pans and bake it in a quick oven.

Cakes—Hoe.

Scald a quart of Indian meal with water enough to make a very thick batter, add two or three teaspoonfuls of salt, and mold it into small cakes with the hands. The hands must be well floured, or the batter will stick. Fry them in nearly sufficient fat to cover them. When brown on the under side turn them; cook them about twenty minutes. When done, split and butter them.

Green-Corn Cake.

Grate the corn, make a rich batter with cream, or according to directions given for batter cakes. Use just sufficient of the batter to hold the corn together, and lay the cakes on the griddle as you would a common griddle cake. Serve with butter.

Hominy Crumpets.

One cup boiled hominy, two cups milk, one tablespoonful sugar, two tablespoons melted butter, four table-spoons of yeast, four cups of flour or enough to make a good batter, and a little salt, well beaten together. Let rise six hours, or until very light, then add one-fourth teaspoon of soda, dissolved in a little hot water. Put into muffin tins; let stand fifteen minutes and then bake quickly; serve hot. For rice crumpets substitute one cup of rice for hominy.

Griddle Cakes—Wheatmeal.

Make a porridge with about three heaping spoonfuls of oatmeal, hominy, rice, or very coarse corn meal, in a pint of water. Boil twenty or thirty minutes, or if you have either of these articles already cooked, it can be made much quicker. Add one pint of cold water and wheat meal, sifting it slowly, enough to make a batter a little thicker than for raised griddle cakes. Bake on a slightly greased, or a soapstone, griddle, spreading out with the spoon as you put them on. Bake them brown, and put them on each other as fast as cooked. Keep them close and warm, and let them stand ten or fifteen minutes before serving. If soft and sticky after standing, you have made them too thin.

Sour Milk Griddle Cakes.

One pint of sour milk, one generous pint of sifted flour, one teaspoonful of salt, one rounded teaspoonful of soda, one teaspoonful of sugar, one table-spoonful of butter, one tablespoonful of water, one egg. Dissolve the soda in the water and stir into the sour milk; add flour, salt and sugar, and beat them well, then add the egg, well beaten, then the butter, melted.

Cake—Breakfast.

One cup of sour cream, one teaspoonful of soda, one egg, one lump of butter

the size of a hen's egg, a small teacupful of sugar, one cup of rye flour, and one cup of Indian meal; make and bake as stirred cake.

Indian-Meal Cakes.

To three pints of Indian meal, a piece of butter as large as an egg, and a teaspoonful of salt. Put two teacupfuls of boiling water, stir it in, then add three eggs, and milk to make it the consistency of batter.

Rice Flour Cakes.

To a pint of the flour add a teaspoonful of salt, a pint of boiling water. Beat up four eggs, stir them well together; put from two to three spoonfuls of lard in a pan; make it boiling hot and fry as you do common fritters. Eat hot, with syrup.

Oat Cakes.

A quarter of a pound of butter to two pounds of oatmeal, then add as much hot water as will just work them together, but the less the better. Roll them out with a rolling-pin as thin as possible. One side should be done on the griddle and the other on the toaster. Oat cakes may also be made without any butter, mixed with hot water, and a pinch of salt added. As little water should always be used as possible, for it makes them flinty. Eat when hot.

German Waffles.

One quart of flour, half teaspoonful of salt, three tablespoonfuls of sugar, two teaspoonfuls of baking powder, two tablespoonfuls of lard, rind of one lemon, grated, one teaspoonful of cinnamon, four eggs and one pint of thin cream. Sift together flour, sugar, salt, and powder; rub in lard, cold; add beaten eggs, lemon, cinnamon and cream. Mix in smooth batter. Bake in hot waffle-iron. Serve with syrup.

Oatmeal Wafers.

Take a pint of oatmeal and a pint of water; add scant teaspoonful of salt,

mix and spread them on buttered pans, and bake slowly.

Crumpets.

Take one quart of dough from the bread early in the morning. Break three eggs separately, all to be whipped to a froth; mix them in the dough and add warm milk until it is the consistency of buckwheat cakes. Beat well and let rise until breakfast time. Have the griddle hot and greased, pour on the batter in small cakes and bake brown.

Cheese Crackers.

Butter the crackers and sprinkle with grated cheese; put into the oven until a light brown. These are delicious with salad.

Crackers—Wheat Flour.

One quart of flour, four ounces of butter or lard, one-half a teaspoon of soda, and the same of salt; sweet milk. Rub the butter thoroughly into the flour and salt; dissolve the soda in the milk, and enough more to take up the flour, which should be made into a very stiff dough; the more the dough is pounded or kneaded the better the crackers; roll out to the desired thickness—one-fourth of an inch—and bake quickly.

Graham Diamonds.

Pour boiling water on Graham flour, making about as thick as can be stirred with an iron spoon. Place the dough with plenty of flour upon a molding-board and knead. Roll out half an inch thick and cut into diamonds. Bake in a very hot oven thirty minutes. Easily digested.

Rye Mush.

Four teaspoons rye flour; mix smooth with a little cold water, then stir it into one pint of boiling water. Boil twenty minutes, stirring constantly. Serve with cream or milk.

Noodles.

Beat three eggs slightly, add two tablespoonfuls of water, a little salt and enough flour to make a stiff dough. Mix thoroughly. Roll very thin;

sprinkle with flour. Take a sharp knife and cut into fine slices. Let them dry thoroughly for about two hours. Use in either a vegetable or clear soup.

SALADS.**French Dressing for Salad.**

To a quart of salad pour over two tablespoonfuls of olive oil; sprinkle with pepper and salt; turn the salad over with the salad knife and fork, then sprinkle two tablespoonfuls of vinegar over, turning again. This is the most simple way to dress a salad while serving lettuce. Water cresses, French beans, or beets are the most suitable for this dressing. Sugar may be used in a small quantity if liked.

Mayonnaise Dressing.

Have oil, vinegar (or lemon juice), and the yolk of one egg very cold. Beat with a Dover egg-beater the yolk of egg in a cold bowl. Add gradually one teaspoonful of olive oil, beating all the time. Add five drops of vinegar or lemon juice, then add another spoonful of oil, again a few drops of vinegar, again oil (it is safest in hot weather to prepare in the cellar), then vinegar, then more oil, until a teacupful of oil and two tablespoonfuls of vinegar have been used. Then pepper and salt to taste.

Beet Root Salad.

Arrange the cold beets in a dish. Pour over them a little salad oil, season with a little sifted sugar and salt, a little Cayenne and vinegar to suit the taste.

Cabbage Salad.

This is a wholesome dish, as raw cabbage is much sooner digested than when cooked; a dressing of vinegar or sweet cream; shred it finely as for slaw.

Chestnut Salad.

Shell chestnuts and boil until soft; when cold, serve upon lettuce with French dressing.

Chicken Salad.

The white meat of a chicken is the best for salad, although the dark can be used. Cut into small pieces with a pair of scissors, also the celery, which must be crisp. Mix thoroughly with the dressing. Mayonnaise is best. Line the dish with crisp lettuce, and put in the salad.

Cucumber Salad.

To 100 cucumbers add one-fourth of a peck of small onions. Peel both and cut them into thin slices; cover with salt, and stand in the sun for six hours; rinse clean, and stand in clear, cold water for one hour. For the dressing take a box of the best mustard, put into it a little salt, pour in sufficient olive oil to stir it easily, and add vinegar and oil alternately till thin enough to pour smoothly. Put the cucumbers in jars, cover with the dressing, and cover closely. Seal the jars.

Egg Salad.

Boil six eggs hard; cut the whites into thin slices; arrange a bed of cresses or crisp lettuce leaves; make nests of the whites and put one whole yolk in the centre of each nest; sprinkle French dressing over or use mayonnaise. Serve cream cheese and saltines with this salad.

Italian Salad.

Trim and cut in delicate thin slices* any cold meat, and put them into a

salad bowl or dish. Mix four table-spoonfuls of roast meat gravy, free of fat, with half a teaspoonful of made mustard, one teaspoonful of salad oil, two tablespoonfuls of vinegar, and pepper and salt to taste. Two or three hours before serving put this over the cold meat, and garnish with parsley, hard-boiled whites of eggs, and beetroot.

Lobster Salad.

Take the meat from the tail and claws of a cold boiled lobster, being careful not to break it; cut it into oblong pieces, and lay them aside. Take the meat from the body, and mix with shredded lettuce and Tartar sauce, pile this up on a silver entree dish, then cover with Mayonnaise sauce, on which sprinkle some pounded lobster roe; place the heart of a lettuce in the centre, and surround it with the pieces of lobster, with heart lettuce leaves between each, and garnish round the border with hard-boiled eggs, cut into quarters, and croutons of aspic jelly.

Salad of Cold Meat.

Trim and cut into thin, delicate slices one pound of cold beef or mutton; mix it in a salad dish with two stocks of lettuce or endive, washed, drained, and shredded small, four ounces of cold boiled white haricot beans, and one finely minced pickled gherkin. Mix together one teacupful of any good roast meat gravy, free of fat, a teaspoonful of salad oil, a wine-glass of vinegar, half a teaspoonful of made mustard, the same of black pepper, and one teaspoonful of salt. Immediately before serving pour this over the salad and mix well with a salad fork and spoon.

Plain Salad.

Take the number of lettuces required, pick off the outside and blemished leaves, lay the stocks in salt

and water for about half an hour, then drain and shred down into pieces not too small, after which shake them well in a dry cloth, to take the water from them. Have a little mustard and cress washed and drained, mix them with the lettuce, put all together in a salad bowl, and ornament with radishes and hard-boiled eggs cut in quarters. Immediately before serving, pour over it the following sauce: take the yolks of two hard-boiled eggs, bruise them in a basin, add a teaspoonful of mustard, one of sugar, a little salt, two table-spoonfuls of vinegar, a little salad oil, two table-spoonfuls of thick cream, and mix all together.

Potato Salad.

Cut one quart of cold boiled potatoes into small pieces. Sprinkle over them a teaspoonful of minced onion and one of parsley or pepper grass. Sprinkle with one-fourth cup of vinegar, heated with a table-spoonful of butter; then pepper and salt. Boil three eggs hard and slice each lengthwise into fourths; garnish the potatoes with these and pour dressing over the whole.

Tomato Salad.

Select small round tomatoes. Pour boiling water over them, and remove the skins carefully.

Put them on the ice to become thoroughly cold. Pour over them the dressing and serve on crisp lettuce.

Vegetable Salad.

Slice the potatoes and tomatoes in thin slices, also the cucumbers, onions and radishes. Put them in ice-water to become cold and crisp; also put the potatoes and tomatoes in a cool place. Mix with the dressing and serve with lettuce. This salad must be kept cold.

Cabbage and Roast Pork Salad.

Shave off one pint firm white cabbage; cut into small pieces the same quantity of cold roast pork; mix together thoroughly and dress

with a Mayonnaise dressing, keeping all very cold to keep the cabbage crisp. If necessary to prepare the salad quickly, the French dressing may be used, though it is not so nice.

PICKLES AND RELISHES.**Pickles—Hints on.**

Some time since it appeared to be the fashion that all pickles should have a bright green color, almost brighter than the pickled vegetable itself possessed when quite fresh, or even when growing under the most favorable circumstances. All vegetables, when subjected to the influence of heat, lose a considerable portion of their natural coloring matter, or it undergoes some chemical change, which renders the color faded and sometimes withered in appearance; if, therefore, pickles must be bright green, they must be colored, and the most common way in which that was done was by letting them lie in a copper vessel. The vinegar with which they were covered absorbed some portion of the copper, and gave a green tinge (which, however, was highly poisonous) to the pickle. So many accidents occurred from the use of these green pickles that the fashion declined, and makers who advertise pickles have ceased to mention their green color as one of their recommendations.

The vegetables intended for pickling are in most cases put either into salt or strong brine for a few days, to extract some of the fluid which all vegetables contain, and which would so much weaken the vinegar that it would have to be renewed in a very short time. Vinegar for pickles must be the best French white wine vinegar, and the spices (which should be the best and freshest that can be procured) may be tied up in a muslin bag and boiled in the vinegar until all the flavor has

been extracted by it. An enameled pan is the best and safest thing to boil any strong acid in.

Pickles—To Detect Copper in.

Put a few leaves of tea, or some of the pickle cut small, into a phial with two or three drams of liquid ammonia, diluted with one-half the quantity of water. Shake the phial, when, if the most minute portion of copper be present, the liquid will assume a fine blue color.

Pickled Beets.

Slice cold boiled beets. Put into a stone crock. For every beet put in one slice of lemon, one tablespoonful of grated horseradish, and vinegar enough to cover. These will not keep any length of time.

Cabbage—To Pickle.

Select firm, ripe heads, slice fine, place in jars, and cover with boiling water. When cold, drain and season with sliced horseradish, salt, equal parts of black and red pepper, cinnamon and cloves. Pack in jars, cover with cold, strong vinegar, and in two days it is ready for use. This pickle will keep a year.

Cabbage (Red)—To Pickle.

Cut the red cabbage in thin slices, spread it on a sieve and sprinkle with salt. Let it drain for twenty-four hours, dry it, pack it in pickle jars, fill them with cold vinegar, put in spice to taste, and tie the jars up firmly with bladder. Open the jars in a few days, and if the cabbage has shrunk, fill up with vinegar.

Cherries—Pickled.

Use the common or Morello cherries; pick off stems, see that they are perfect, and lay them in a glass or earthen jar, with sufficient cold vinegar to cover them, and keep them in a cool place. They need no spices, as they retain their own flavor.

Chutney—Bengal.

One pound of tamarind pulp, one pound of sultana raisins, the grated rind and half the juice of twelve lemons, one pound of tomato pulp, one pound of minced apples, a quarter of a pound of peeled garlic, six chopped onions, half a pound of red chillies, one pound of ginger in powder, one pound of moist sugar, and four quarts of strong vinegar. Mix the whole thoroughly together, and keep it for a month in a warm place to ferment; stir it occasionally, and then put it into small jars.

Pickles of Sweet Citron.

Cut the citron into pieces of desirable shape and size, then place them in a jar (stone is best), cover them with a weak brine and let them stand for twenty-four hours, then drain or wipe them dry. Take enough good vinegar to nearly or quite cover them. To every gallon of vinegar add one and one-fourth pounds of nice brown sugar, one ounce each of whole cloves, allspice, stick cinnamon, and mace. Boil the vinegar, sugar, and spices together a few minutes and then pour over the citron. Let the whole stand two or three days, then repeat the scalding. After another day or two boil the whole together until the citron is done enough to pass a straw through. Keep in a cool, dry place.

Corn (Green)—Pickling.

When the corn is a little past the tenderest roasting-ear state, pull it; take off one thickness of the husk, tie the rest of the husk down at the silk

end in a close and tight manner; place them in a clean cask or barrel compactly together, and put on brine to cover the same of about two-thirds the strength of meat pickle. When ready to use in winter, soak in cold water over night, and if this does not appear sufficient, change the water and freshen still more.

Cucumbers (Green)—To Pickle.

Make a brine by putting one pint of rock salt into a pail of boiling water, and pour it over the cucumbers; cover tight to keep in the steam, and let them remain all night and part of the day; make a second brine as above, and let it remain in it the same length of time; then scald and skim the brine, as it will answer for the third brine, and let them remain in it as above; then rinse and wipe them dry, and add boiling hot vinegar; throw in a lump of alum as large as a nut to every pail of pickles, and you will have a fine, hard, and green pickle. Add spices, if you like, and keep the pickles under the vinegar. A brick on top of the cover, which keeps the pickles under, has a tendency to collect the scum which may arise.

Pickles—Cucumber.

Cucumbers should be cut from the vines, a part of the stem left on; observe care not to mar them; if bruised they will decay. Select such as are of suitable size and of good quality, and cover them with boiling water, let them remain until the water is cool; if for vinegar pickles, add a small quantity of salt before scalding. When cold, drain thoroughly, and cover with boiling vinegar with an addition of spice if preferred. If for brine, put a layer of dry salt in the bottom of the barrel, and after thoroughly draining the pickles, put them in with dry salt among them. Add no water. Put

a weight upon them, they will furnish the moisture for brine, and will keep better, besides being more crisp and brittle for having had the gum soaked from them by the boiling water.

Pickle—French.

Take one peck of green tomatoes cut in thin slices. Take a layer of tomatoes and sprinkle salt upon it, and so on alternately until the whole peck is disposed of. Let them remain in this condition over night, and in the morning squeeze them out dry. Then take two heads of slough cabbage cut up fine, one dozen large green peppers cut fine, one-fourth of a peck of chopped onions; then add one-half of a pound of mustard, one-half of a pound of white mustard, one pound of sugar, two ounces of allspice, ten cloves whole, two ounces of celery seed; mix all together and cover with vinegar and boil two hours.

Gherkins—Pickled.

Steep them in strong brine for a week, then pour it off, heat it to the boiling point, and pour it on the gherkins; in 24 hours drain the fruit on a sieve, put it into wide-mouthed bottles or jars, fill them up with strong pickling vinegar, boiling hot, bung down immediately, and tie over with bladder. When cold, dip the corks into melted bottle wax. Spice is usually added to the bottles, or else steeped in the vinegar.

In a similar way are pickled onions, mushrooms, cucumbers, walnuts, samphires, green gooseberries, cauliflowers, melons, barberries, peaches, lemons, tomatoes, beans, radish pods, codlins, red cabbage (without salt, and with cold vinegar), beetroot (without salting), garlic, peas, etc., etc., observing that the softer and more delicate articles do not require so long soaking in brine as the harder

and coarse kinds, and may be often advantageously pickled by simply pouring very strong pickling vinegar over them without applying heat.

Grapes—Pickled.

Fill a jar with alternate layers of sugar and bunches of nice grapes just ripe and freshly gathered; fill one-third full of cold vinegar, and cover tightly.

Pickle—Indian.

Pull a white cauliflower into branches, peel the stalk and slice it; slice a small white cabbage, a cucumber, a dozen onions, and six tomatoes; add six cloves of garlic, one dozen shallots, a dozen capsicums, half a pint of French beans, some radish pods, and a large handful of scraped horse-radish. Lay all these vegetables in a pan, and pour over them strong boiling brine. Let them lie half an hour, then drain off the brine, and dry them in the sun, or in a cool oven. Boil one gallon of vinegar with four ounces of pounded black pepper, four ounces of pounded white pepper, two ounces of pounded chillies, two ounces of pounded ginger, one ounce of pounded cloves, four ounces of mustard flour, two ounces of turmeric, and one ounce of mustard seed. Lay the vegetables in a stone jar, pour the vinegar and spices while boiling hot over them, and when cold, cover the jar with a bladder. In a month it will be fit for use.

Melon Mangoes.

The late, small, and smooth muskmelons are used for this pickle. Cut out a plug at the stem end, or, as some prefer it, from the side; scrape out the contents, replace the plug, and secure it with a wooden pin, and put the melons thus prepared into a strong brine. When they have been in the brine for twenty-four hours or more, they are ready

for stuffing. The stuffing is made of any pickle material at hand; shredded cabbage, broken cauliflower, small cucumbers and onions, green beans, peppers, mustard seed, nasturtium, scraped horseradish, and the like. Cabbage and other stuffing, except the aromatics, are better for being scalded and cooled. Stuff the melons according to fancy, and then sew each plug in its place by means of a needle and coarse thread. Place the stuffed melons in a jar, add cloves, pepper, and other desired spices, and pour boiling vinegar over them. Repeat the scalding of the vinegar for three days in succession.

Pickles—Mixed.

Take half a pint of half grown French beans, as nearly of the same size as possible, a dozen gherkins, each from two to three inches long, a small, green cucumber cut into slices about half an inch thick; put these into a pan of brine, strong enough to float an egg. Let them lie for three days, stirring them each day, then place them in an enameled preserving pan, with vine leaves under and over them, pour in the brine in which they have been steeped, and cover them closely to prevent the steam escaping; set them over a slow fire but do not allow them to boil; when they become of a green color, drain them through a sieve and let them remain till the other ingredients are ready. Pull a small white cauliflower into branches, and lay it in strong brine, together with half a pint of onions, the size of marbles, peeled, a dozen fresh chillies (scarlet), or a few scarlet capsicums; let them remain three or four days, then arrange them in pickle bottles with the green pickle already done interspersed in a tasteful manner through them. Boil as much good vinegar as will be sufficient to fill up the bottles, with some whole allspice, white pepper, bruised ginger,

mace, mustard seed, and slices of horseradish. When the vinegar tastes very strongly of these spices, strain it carefully (unless they have been tied in a bag as already recommended). Let the vinegar stand till cold, then fill the bottles and cork securely.

To Pickle Mushrooms.

Have as many button mushrooms as you intend to pickle gathered in the morning before the sun is on them, cut off the stalks, peel, and put them in cold water. When all done, have a stewpan with boiling water and salt; let them boil five minutes; then put them in a sieve to drain for an hour. Boil for ten minutes some vinegar with peppercorns, and mustard seed, put the mushrooms in a jar; put a piece of muslin over the jar, pour in the vinegar, let it stand till cold, then tie it up with a piece of double paper.

Another.—Take a quart of small field button mushrooms, cut the stems close and rub off the skin with a bit of flannel and a little salt; throw them as they are done into salt water. Drain, and dry them in a cloth. Put a quart of strong vinegar into an enameled pan, with an ounce of bruised ginger, half an ounce of whole white pepper, half an ounce of mustard seed. Tie up in a bit of muslin a small nutmeg, sliced, and half a salt-spoonful of Cayenne; put this along with a tablespoonful of salt into the vinegar, and let it and the spices come to a boil. When boiling briskly, throw in the mushrooms, and let them boil ten minutes. Take out the muslin bag and put the other spices into the pickle bottles, along with the mushrooms and vinegar. When quite cold, cork the bottles and cover them with a bladder.

Pickled Onions.

Boil small, silver-skinned onions in sweet milk and water (half and half) then remove the skins. Boil strong

salt and water and pour over the onions while hot. Let them stand twenty-four hours. Drain them and wipe dry. Pour boiling white vinegar over them. Put into jars and seal.

Another.—Have the onions gathered when quite dry and ripe, and with the fingers take off the thin outside skin, then with a knife remove one more skin, when the onion will look quite clear. Have ready some very dry bottles or jars, and as fast as the onions are peeled put them in. Pour over sufficient cold water to cover them, add two teaspoonfuls of allspice and two teaspoonfuls of black pepper, taking care that each jar has its share of the latter ingredients. Tie down with bladder, and put them in a dry place, and in a fortnight they will be fit for use. This is a most simple recipe, and very delicious, the onions being nice and crisp. They should be eaten within six or eight months after being done, as the onions are liable to become soft.

Oysters—Pickled.

Take one hundred freshly opened oysters and simmer them slowly in their own liquor; when the beards begin to curl, take them out one by one and put them in a pan containing ice-water (cooling rapidly renders them firm). Strain the liquor and return to the kettle, then add one ounce of whole allspice, the same of pepper, a few blades of mace, and half a teaspoonful of salt. Simmer five minutes, and add one pint of vinegar (not too strong). Then boil about two minutes longer. When the liquor becomes cold, pour it over the oysters. Ready for use in twelve hours.

Piccalilli (Indian Method).

This consists of all kinds of pickles mixed, and put into one large jar—sliced cucumbers, button onions, cauliflowers broken in pieces. Salt them,

or put them in a large hair sieve in the sun to dry for three days, then scald them in vinegar a few minutes; when cold put them together. Cut a large white cabbage in quarters with the outside leaves taken off and cut fine; salt it, and put it in the sun to dry three or four days; then scald it in vinegar the same as cauliflower; carrots, three parts, boiled in vinegar and a little bay salt. French beans, radish pods, and nasturtiums, all go through the same process as capsicums, etc. To one gallon of vinegar put four ounces of ginger bruised, two ounces of whole white pepper, two ounces of allspice, one-half ounce chillies bruised, four ounces of turmeric, one pound of the best mustard, one-half pound of shallots, one ounce of garlic, and one-half pound of bay salt. The vinegar, spice and other ingredients except the mustard, must boil half an hour, then strain it into a pan, put the mustard into a large basin, with a little vinegar; mix it quite fine and free from lumps, then add more. When well mixed put it into the vinegar just strained off, and when quite cold put the pickles into a large pan, and the liquor over them; stir them repeatedly, so as to mix them all. Finally, put them into a jar, and tie them over first with a bladder, and afterwards with leather.

Peaches—Pickled.

To seven pounds of fruit take four pounds sugar, one quart vinegar, one ounce cloves, one ounce cinnamon, one ounce allspice. Put the spice in a bag, and boil it in the syrup three mornings in succession, and pour over the fruit; the fourth morning scald the fruit with the syrup, and it is ready for use. Seal up.

Another.—For six pounds of fruit use three of sugar, about five dozen cloves, and a pint of vinegar. In each peach stick two cloves. Have the syrup hot and cook till tender.

Tomato Pickle.

Twelve large, ripe tomatoes, three onions, four red peppers, two tablespoonfuls of brown sugar, two tablespoonfuls of salt, one-half pint of vinegar. Peel and slice the tomatoes. Chop the onions and peppers fine. Put all together and cook slowly for an hour and a half, then bottle and seal.

Tomato (Green) Pickle.

Slice and steam till they begin to soften, take from the steamer and put in jars, add a little salt, about a teacupful of sugar, half of a spoonful of pepper, cloves and cinnamon each, one-fourth of a spoonful of spice, some whole mustard seed, and slice one or two good-sized onions with it; cover the whole with vinegar and let stand twenty-four hours; then scald the liquid and when cold it is ready for use. The seasoning is for one gallon.

Another.—Slice one peck green tomatoes; take one gallon vinegar, six tablespoonfuls whole cloves, one of allspice, two of salt, one of mace, one of Cayenne pepper; boil the vinegar and spices ten minutes; put in the tomatoes and boil all together one half an hour longer; when cold, put in jars.

Sauerkraut—To Make.

In the first place let your "stand," holding from half a barrel to a barrel, be thoroughly scalded out; the cutter, the tub and the stamper also well scalded. Take off all the outer leaves of the cabbages, halve them, remove the heart and proceed with the cutting. Lay some clean leaves at the bottom of the stand, sprinkle with a handful of salt, fill in half a bushel of cut cabbage, stamp gently until the juice just makes its appearance, then add another handful of salt and so on until the stand is full. Cover over with cabbage leaves, place on top a clean board fitting the space pretty well, and on top of that a stone weighing twelve

or fifteen pounds. Stand away in a cool place, and when hard freezing comes on, remove to the cellar. It will be ready for use in from four to six weeks. The cabbage should be cut tolerably coarse. The Savoy variety makes the best article, but it is only half as productive as the Drumhead and Flat Dutch.

Mustard Pickle.

Mix one-half cup of flour with three tablespoonfuls mustard and one-half tablespoonful of turmeric with enough cold vinegar to make a smooth paste; add three tablespoons of brown sugar and enough vinegar to make a quart in all. Boil until thick and smooth. Have one pint of very small cucumbers, two large cucumbers sliced, three green tomatoes, also sliced, a dozen small button onions, a small head of cauliflower, one green pepper and one ripe one cut fine. Make a brine and let all the vegetables stand in it twenty-four hours. Scald in the brine and drain thoroughly. Add the vegetables to the prepared mustard and heat through.

Walnuts (White)—To Pickle.

Pare green walnuts very thin until the white appears, then throw them into water with a handful of salt; keep them under water six hours, then put them into a saucepan to simmer five minutes, but do not let them boil; take them out and put them in cold water and salt; they must be kept quite under the water with a board, otherwise they will not pickle white; then lay them on a cloth and cover them with another to dry; carefully rub them with a soft cloth, and put them into the jar, with some blades of mace and nutmeg sliced thin. Mix the spice between the nuts and pour distilled vinegar over them; when the jar is full of nuts pour mutton fat over them, and tie them close down with a bladder and leather, to keep out the air.

PASTRY. PUDDING. DESSERTS.

Paste—Rich and Light.

To one pound of flour, dried and sifted, take one-half pound of good fresh butter and one-half pound of lard; divide the flour into two equal portions; put one-half on the paste-board; cut the butter (from which the water should be squeezed) into slices about one-half an inch thick; do the same with the lard; cover the slices with flour, roll them out thin with the rolling-pin and lay them aside; work into it with a spoon a quarter of a pint of water, or enough to make the flour into a stiff dough—too wet a dough will make tough paste—lay this upon the paste-board, and roll it out till it is half an inch thick, then lay the fourth part of the butter and lard all over it, fold it up and roll it again; put on another fourth of the butter, and repeat the buttering and rolling till all the rolled butter is mixed in. Then cover the tart, and bake it in a brisk oven. Always handle pastry as lightly as possible, particularly after the butter has been put in.

Paste—Potato.

A quarter of a pound of cold boiled potatoes to one-half pound of flour, rubbed well together, wet with very little water, and add six ounces of good lard or butter. For a sweet paste, add a tablespoonful of powdered sugar; for a meat paste the same quantity of salt.

Paste for Fruit or Meat Pies.

This paste may be made of two-thirds of wheat flour, one-fourth of the flour of boiled potatoes, and some butter or dripping; the whole being brought to a consistence with warm water, and a small quantity of yeast added when lightness is desired.

Apple Pie.

Four or five sour apples, one-third cup sugar, one-fourth teaspoon grated

nutmeg, one-eighth teaspoon salt, one teaspoon butter, one teaspoon lemon juice, few gratings lemon rind. Line pie plate with paste. Pare, core, and cut the apples into eighths; put row around the plate, one-half inch from the edge, and work toward the center until the plate is covered; then pile on the remainder. Mix sugar, nutmeg, salt, lemon juice and rind and sprinkle over the apples. Dot over with butter. Wet edges of under crust, cover with upper crust, and press edges together. Bake forty to forty-five minutes in a moderate oven. A very good pie may be made without butter or lemon. Cinnamon may be substituted for nutmeg. Evaporated apples soaked over night in cold water may be used in place of the fresh fruit.

Berry Pie.

Take nice, ripe berries of any kind and pick over carefully. Place about an inch thick on an under crust. Scatter a small cupful of sugar and a tablespoonful of flour over them. Put on an upper crust and bake half an hour.

Blackberry Pie.

Line pie plate with foundation paste and fill with blackberries, sprinkle well with powdered sugar, cover with another flat of paste, brush with egg, make line around edge with knife, and bake.

Cherry Pie.

Stone your cherries, that you may be sure they are free from worms; lay your paste in a deep dish, and add a good quantity of fruit; fill the dish with molasses, with a handful of flour sprinkled over, then a nice paste on top, and bake more than half an hour. If sugar is used, you will need water and flour. This makes the gravy very rich and the pie delightful.

Another.—Line a pie-tin with rich paste; nearly fill with carefully seeded

fruit, sweeten to taste, and sprinkle evenly with a teaspoon of corn-starch or a tablespoon of flour; add a tablespoon of butter cut into small bits and scattered over the top; wet edge of crust, put on upper crust and press the edges closely together, taking care to provide holes in the center for the escape of air.

Chocolate Pie.

Five tablespoonfuls of grated chocolate, yolks of two eggs, a little salt, half cupful of sugar, two teaspoonfuls of flour. Mix thoroughly and pour on one cupful of boiling water. Cook, stirring constantly. Flavor with a little vanilla. Line a pie plate with pastry, and bake. When done, pour this mixture on. Beat the whites to a stiff froth, add two teaspoonfuls of pulverized sugar and spread over the top. Put in oven to brown slightly.

Another.—Two tablespoons butter, three-fourths cup of sugar, one egg, half cup milk, one and one-half cups flour, two teaspoons baking powder. Mix and bake as cream pie; split layers, and spread between and on top of each a thin layer of chocolate frosting.

Cocoanut Pie.

Cut off the brown part of the cocoanut, grate the white part, mix it with milk, set it on the fire, and let it boil slowly eight or ten minutes. To one pound of the grated cocoanut allow a quart of milk, eight eggs, four tablespoonfuls of sifted white sugar, a glass of wine, a small cracker pounded fine, two spoonfuls of melted butter, and one-fourth of a nutmeg. The eggs and sugar should be beaten together to a froth, then the wine stirred in. Put them into the milk and cocoanut, which should be first allowed to get quite cool; add the cracker and nutmeg, turn the whole into deep pie-plates, with a lining and rim of puff-paste. Bake them as soon as turned into plates.

Cranberry Pie.

Wash a quart of berries, picking out all bad ones. Simmer in an earthenware dish until very soft; rub through a wire sieve and add one cup of sugar. Bake in a thick under crust.

Cream Pie.

For 1 pie, take 2 eggs, $\frac{1}{2}$ cup of sugar, 3 tablespoonfuls of flour, 1 pint of sweet milk; heat your milk; beat sugar, eggs and flour together; add to the scalded milk, and cook to a thick custard; flavor with lemons; bake your crust, and when cold fill with the custard.

Custard Pie.

Heat a quart of milk; add four well beaten eggs, one half teaspoonful of corn-starch dissolved in a little milk, five tablespoonfuls of sugar, and a little salt. Let this thicken. Line a pie plate with crust, and when baked fill with this custard. Spread over the top whipped cream.

Another.—Make a good custard of three pints of milk, six eggs, well beaten, a cup of sugar and a teaspoonful of vanilla. Line your plates with paste, pour in the custard and bake immediately. Do not let curdle.

Fruit Pies.

Fruit pies with lids should have sugar over them. If they have been baked the day before they should be warmed in the stove or near the fire, before they are sent to the table, to soften the crust and make them taste fresh. Raspberry and apple pies are much improved by taking off the lid and pouring in a little cream just before going to the table. Replace the lid very carefully.

Gooseberry Tart.

Thoroughly stem a quart of green gooseberries. Put into a saucepan with enough water to prevent burning, and stew them slowly until

they break. Stir often. Sweeten them well and set by to cool. Pour into a pie dish lined with puff-paste, cover with top crust and bake in a good oven. Serve cold with powdered sugar sifted over top.

Grape Pie.

Make like any other fruit pie, using either green, ripe or canned grapes. Be sure to sweeten well, as the heat brings out the acid.

Lemon Pie.

Two lemons; squeeze out the juice, and chop the lemons fine, (take out the seeds); 3 cups of water, 3 cups of sugar, 1 egg, $\frac{3}{4}$ of a cup of flour; beat the egg well with a cup of water and the flour; then stir lemons, juice and all together; this will be sufficient for 3 pies.

Another.—Beat the yolks of four eggs until light, add one cupful of sugar, one cupful of sweet milk, one tablespoonful of sifted flour, two tablespoonfuls of melted butter, the grated rind and juice of one lemon. Line a pie tin with paste, pour this in and bake. Beat the whites of the eggs until stiff, add a tablespoonful of pulverized sugar. Spread on the pie, and bake until a light brown.

Another.—Grate $\frac{1}{2}$ of the outside of a lemon, and squeeze out the juice; yolks of 2 eggs; 2 tablespoonfuls, heaped, of sugar; $\frac{1}{2}$ cup of water; stir well, and bake in a deep dish lined with crust. Beat the whites of the eggs to a stiff froth; stir in 2 tablespoonfuls of pulverized sugar, and spread over the top of the pie, as soon as it is baked. Set in the oven till the top is nicely browned.

Plain Lemon Pie.

Grated rind and juice of one lemon, one cup of sugar and one egg. Dissolve one tablespoonful of corn-starch in water, pour on one cup of hot water, and cook until thick. Then stir

in with the egg, sugar and lemon. Make a crust of one cup of flour, one-third of a cup of lard and pinch of salt. After mixing thoroughly add a little, and mix as little as possible after.

Marlborough Pie.

Six tart apples, six ounces of sugar, six ounces of butter or thick cream, and six eggs. The grated peel of one lemon and one-half the juice. Grate the apples after paring and coring them. Stir together the butter and sugar as for the cake. Then add the other ingredients and bake in a rich under paste only.

Mince Pies.

One-half cup chopped suet, one teaspoonful of salt, two cups chopped meat, four cupfuls chopped apples, chopped with one lemon rind and juice, also one pint of boiled cider, one-half cup seedless raisins, one-half cup seeded raisins and one-half cup clean currants, more if convenient. One glass of jelly, three cups of sugar, coriander, nutmeg, mace, cinnamon, cloves and allspice, each one-half teaspoonful. Mix thoroughly. This will make four or five pies.

Another.—Take of boiled beef, chopped fine and salted, one pint; apples, chopped fine, one quart; butter or suet, one teacupful; one teacupful sugar; one pint each of boiled cider and water. Stew all together until the apples are done, and when cold, add one pint of canned or stewed raspberries or blackberries, one teaspoonful of pepper, one of cloves, two of cinnamon, and two of allspice.

Orange Pie.

Take the juice and pulp of six large, sour oranges, and the grated rind of four, a little salt, three cupfuls of sugar, three eggs, four cupfuls of water, six spoonfuls of rice flour. Mix these ingredients well together, make a good crust, and bake like other pies.

Peach Pie.

Take mellow, juicy peaches; wash, slice, and put them into a tin pie plate lined with pie-crust; sprinkle a thick layer of sugar on each layer of peaches, put in about a tablespoon of water and sprinkle a little flour over the top, cover it with a thick crust, and bake from fifty to sixty minutes.

Another.—Line a pie tin with puff-paste; fill with pared peaches in halves or quarters, well covered with sugar, put on upper crust, and bake; or make as above without upper crust, bake until done, remove from the oven, and cover with a meringue made of the whites of two eggs, beaten to a stiff froth with two teaspoons of powdered sugar; return to oven and brown slightly. Canned peaches may be used instead of fresh in the same way.

Another.—Fill a pudding dish with pared peaches, stones left in, sweeten to taste, add a very little water, and cover with a puff-paste. Delicious!

Cream Peach Pie.

Line a pan with rich paste; pare and halve enough peaches to fill the pan; mix two tablespoonfuls of flour with one cup of sugar and sprinkle over the peaches; fill the pan with thick, sweet cream, and bake.

Sweet Potato Pie.

Scrape clean two good-sized sweet potatoes. Boil. When tender, rub through the colander; beat the yolks of three eggs, stir with a pint of new milk into the potato, add a teacup of sugar, a pinch of salt. Flavor with fresh lemon, or extract will do; bake as you do pumpkin pies. When done make a meringue top with the whites of eggs and powdered sugar. Brown a moment in the oven.

Another.—When the potatoes are dry and mealy, take a quart after they have been pared, boiled, and mashed, a quart of milk, four eggs, salt, nut-

meg, cinnamon, and sugar to taste. Bake the same as squash pies. If the potatoes are very moist use less milk.

Pumpkin Pie.

Choose the best pumpkins that can be found. Take out the seeds, cut the rind carefully away, and then cut the pumpkin into thin and narrow bits. Stew over a moderate fire in a little water—just enough to keep the mass from burning—until soft. Turn off the water, if any remains, and let the pumpkin steam over a slow fire about 10 minutes. When sufficiently cooled, strain through a sieve. Sweeten the pumpkin with sugar and a little molasses. The sugar and eggs should be beaten together. The flavoring requires ginger, the grated rind of a lemon or nutmeg, and salt. To one quart of pumpkin add 1 quart of milk and 4 eggs for ordinary richness.

Heat the pumpkin scalding hot before putting it upon the crust to bake, otherwise the crust will be scalded. Bake in a very hot oven.

Squash Pies.

Take five pounds of the pith of a boiled squash, and after putting it through a sieve, add four crackers, finely pulverized, three pints of milk, and five well beaten eggs. Flavor with mace, ginger or nutmeg, and sweeten to taste. A teaspoonful of butter while the squash is hot is good. Bake in pie plates lined with common paste. It may be baked in a deep pudding dish, also.

Apple Custard.

Pare and core two sour apples. Slice and cook them in one-quarter of a cup of water until they soften. Place in a small pudding dish and sugar them. Take two eggs, beat them thoroughly with two tablespoonfuls of sugar, and add to them one pint of milk. Grate in a little

nutmeg and pour over the apples. Bake about twenty minutes. To be served cold with hot sponge cake.

Another.—1 pint of good stewed apples, a $\frac{1}{4}$ of a lb. of butter, $\frac{1}{2}$ a pint of cream, 3 eggs beaten light, sugar and grated nutmeg to taste. Mix the ingredients together, and bake in a puff-paste in a moderate oven.

Custard—Baked.

Boil in a pint of milk a few coriander seeds, a little cinnamon and lemon peel; sweeten with four ounces of loaf sugar; mix with a pint of cold milk; beat eight eggs for ten minutes; add the other ingredients; pour it from one pan into another six or eight times; strain through a sieve; let it stand; skim the froth from the top, fill it in earthen cups, and bake immediately in a hot oven; give them a good color; fifteen minutes will cook them.

Custard—Boiled.

Boil a quart of milk with a little cinnamon, and half a lemon peel; sweeten it with nice white sugar, strain it, and when a little cooled mix in gradually seven well beaten eggs and a tablespoonful of rose-water; stir all together over a slow fire till it is of proper thickness, and then pour it into your glasses. This makes good boiled custard.

Soft Caramel Custard.

One quart of milk, half cupful of sugar, six eggs, half teaspoonful of salt. Beat the eggs and add the cold milk to them. Stir the sugar in a frying-pan until it becomes liquid and just begins to smoke. Stir into the boiling milk. Then add beaten eggs and cold milk. Stir constantly until it begins to thicken. Set away to cool.

Coffee Custard.

Take half a pint of hot milk, and the same quantity of strong coffee, also two ounces of sugar. Having dis-

solved the sugar in the hot milk and coffee, add the same slowly to four eggs previously well beaten up.

Apple Cream.

Boil twelve apples in water till soft; take off the peel and press the pulp through a hair sieve upon half a pound of pounded sugar; whip the whites of two eggs, add them to the apples, and beat all together till it becomes very stiff and looks quite white. Serve it heaped up on a dish.

Apple Rose Cream.

Wash, core, slice and cook, without paring, a dozen fresh apples until soft and very dry. Rub through a colander to remove skins, add sugar to taste and the beaten whites of two eggs, beating vigorously until stiff; add a teaspoonful of rose-water for flavoring, and serve at once or keep on ice. It is important that the apples be very dry, as otherwise the cream will not be light. Different varieties of apples may be used, and flavored with vanilla or pineapple. It is sometimes better to steam the apples than to stew them tender.

Bavarian Cream.

Soak a fourth of a box of gelatine in a fourth of a cupful of water until soft. Make a custard of the yolks of two eggs, half a cupful of sugar and a cupful of milk; add the gelatine and strain it into a pan set in ice-water. Stir constantly; flavor with vanilla or orange juice. When it begins to harden stir in a cupful of cream whipped very stiff. When almost stiff enough to drop, pour in a mold set in cold water, and place where it will harden.

Cream Shape.

Whip a pint of cream to a stiff froth, adding a tablespoonful of powdered sugar, and a teaspoonful of vanilla. Dissolve one-half ounce of gelatine in boiling water, and as this cools and is beginning to set, whip it in lightly to the

whipped cream, and as this thickens, turn it into a mold to set. The mold should be put on ice previous to serving.

Italian Cream.

To a pint of rich milk add as much fine white sugar as will sweeten it, the rind of a large lemon pared thin, a small piece of cinnamon, and three-quarters of an ounce of isinglass; put all these ingredients into a lined saucepan and boil till the isinglass is perfectly dissolved; beat the yolks of six eggs very well in a large basin, and strain the milk while boiling hot to the eggs, stirring them rapidly all the time; continue to stir till the mixture is nearly cold; before putting it into the shape add a dessertspoonful of strained lemon juice; it will turn out in a few hours.

Royal Cream.

One quart of milk, one-third box of gelatine, four tablespoonfuls of sugar, three eggs, vanilla flavor. Put the gelatine in the milk and let it stand half an hour. Beat the yolks with the sugar and stir into the milk. Set in a kettle of hot water until it begins to thicken like soft custard. Beat the whites of the eggs to a stiff froth. The moment the kettle is taken from the fire stir them in quickly. Turn into molds. Set in a cold place to harden.

Puffs.

One cupful of milk, two eggs, well beaten, scant teaspoonful of salt and one cupful of flour. Put these all into a bowl and beat for five minutes. Bake in a quick oven in muffin rings.

Cream for Puffs.

One half-pint of milk, one cupful of sugar, one-half cupful of flour, two eggs. Stir the flour in a little milk and put the rest of the milk on the stove. When hot, stir in the sugar and eggs beaten to-

gether with flour. Cook until thick. Flavor with vanilla. When both this and puffs are cool, open top of puffs and fill with cream. This makes one dozen puffs.

Meringues.

Separate the whites from eighteen eggs; put twelve of the whites in a brass or copper pan, and beat them with a beater till very light, adding a spoonful of vinegar. Then take the other six whites, and beat them in a basin with two pounds of icing sugar, and a teaspoonful of vinegar, till it becomes light and stiff. Mix all gently together in a pan; have three or four sheets of thin cartridge paper greased; cut the paper in strips, and lay it on boards two inches thick, then, with a tablespoon, drop the meringues in rows on the paper as near to the shape of an egg as possible. Sprinkle a little colored sugar on the top of each, and put them in a cool oven, the door of which must be left open, for one hour. Take them out and separate them from the paper with a sharp pointed knife dipped in warm water, then place two of them together, which forms the meringue.

Meringues, No. 2.

Drop the whites of six fresh eggs into a brass or copper pan; switch up till very stiff, adding a little white wine vinegar, then stir in gently eight ounces of the finest ground sugar; put this mixture into the bag and pipe, drop the meringues through it on greased oven tins in the form of twisted shells. Bake in a very slow oven till they become hard and a light brown; then take them out, and with a teaspoon scoop out the inside, so as to make space for some switched cream or preserves, with which they are filled when cold. Put the shells in some dry place all night, so as to dry them thoroughly before using.

Peach Meringue.

Pare and quarter (remove stones) a quart of sound, ripe peaches; place them all in a dish that it will not injure to set in the oven and yet be suitable to put on the table. Sprinkle the peaches with sugar and cover them well with the beaten whites of three eggs. Stand the dish in the oven until the eggs have become a delicate brown, then remove, and, when cool enough, place the dish on ice or in a very cool place. Take the yokes of the eggs, add to them a pint of milk, sweeten and flavor, and boil same in a custard kettle, being careful to keep the eggs from curdling. When cool, pour into a glass pitcher and serve with the meringue when ready to use.

Charlotte Russe.

Soak two tablespoonfuls of gelatine in enough cream to cover it. Whip one pint of cream as stiff as possible, also whip the whites of four eggs to a stiff froth; add one-third cupful of powdered sugar to the eggs, also a teaspoonful of vanilla; add the eggs to the cream and then the gelatine, which must be warm. Line a dish with lady fingers or small pieces of sponge cake, pour in the Charlotte Russe and place in a cold place. Let it stand four or five hours. It can be served in the same dish or poured on another.

Another.—Take a little less than 1 oz. of gelatine and dissolve in 1 pint of new milk. Strain into 1 pint of thick cream made very sweet, and set this in a cool place or on the ice. Take the whites of seven eggs and beat to a froth; then add them to the cream, and beat them. Flavor with vanilla, and keep on the ice until wanted. Line the moulds with very light sponge cake, and fill with the above when wanted.

Cherry Charlotte.

Stone a quart of ripe cherries and mix them with a pound of brown sugar.

Cut slices of bread and butter, and lay them around the sides and in the bottom of a large, deep dish. Pour in the fruit boiling hot, cover the bowl, and set it away to cool gradually. When quite cold, serve with sweet cream. This is very nice in hot weather.

Plum Charlotte.

Stone a quart of ripe plums, and mix them with a pound of brown sugar. Cut slices of bread and butter, and lay them around the sides and in the bottom of a large, deep dish. Pour in the fruit boiling hot, cover the bowl, and set it away to cool gradually. When quite cold, serve with sweet cream. This is very nice in hot weather.

Peach Cobbler.

(An old Southern way of making.) Take one quart of flour, two tablespoonfuls of suet and two of lard; melt well together; half teaspoonful of salt, two teaspoonfuls of cream tartar, one of soda; mix all well with the flour, with sweet milk or cold water, and roll medium thick. Have ready a pan or deep crock buttered. Line the sides with a thin rolled dough, leaving the bottom of the vessel uncovered. Put in a thick layer of sliced peaches, over which sprinkle two tablespoonfuls of sugar. Over this put a layer of dough rolled very thin and cut in strips of an inch in width—in the form of dumplings, often used with stewed chicken; then a layer again of sliced peaches, and so on, until the vessel is nearly full. Over all sprinkle a cup of sugar (brown is preferable); add a lump of butter, size of walnut, and a half cup of hot water. Roll a top crust a little larger than the vessel, cut it in the center, put it on, folding the side edging over it, and crimping down tightly. Bake in a hot oven for half an hour and serve hot with a sauce of drawn-butter and sugar worked to the consistency of paste. Canned fruit of any kind,

particularly berries, may be served in this way.

Apple Pudding.

Sliced tart apples, bread crumbs, butter, sugar, cinnamon. Butter a pudding dish very well and put in a layer of crumbs; then small pieces of butter; next, sliced apples well covered with sugar and cinnamon. More buttered crumbs. Repeat the layers in this way until the dish is full, with crumbs on top. Cover dish and bake from half to three-quarters of an hour; turn out, pour liquid sauce over it, and serve hot.

Another.—1 lb. of flour, 6 oz. of very finely-minced beef suet; roll thin and fill with $1\frac{1}{4}$ lbs. of boiling apples; add grated rind and strained juice of small lemon; tie it in a cloth; boil 1 hour and 20 minutes, or longer, in the water. A small slice of fresh butter stirred into it when it is sweetened will be an acceptable addition; grated nutmeg, or cinnamon in fine powder, may be substituted for lemon-rind. For a richer pudding, use $\frac{1}{2}$ lb. of butter for the crust, and add to the apples a spoonful or two of orange or quince marmalade.

Another.—Pare 4 or 5 large, tart apples, and grate them fine; then make the following custard, into which stir the grated apple: Flour, 4 tablespoonfuls; 1 pint of milk, 5 eggs, and a little grated orange-peel. After you have these ingredients well mixed, pour them into your pudding dish, and bake about $1\frac{1}{4}$ hours.

Apple Pudding—Baked.

Four large apples boiled, some grated bread, 4 oz. of butter, 4 yolks and 2 whites of eggs well beaten, sugar to taste; edge a dish with puff-paste and bake half an hour.

Apple and Bread Pudding.

One quart of bread crumbs, one quart of apples chopped, half cupful

of suet chopped fine, cupful of currants, rind and juice of two lemons, four well beaten eggs. Mix thoroughly. Put the mixture into a well buttered mold. Steam for three hours. Serve with brandy sauce.

Apple and Rice Pudding.

Steam one cupful of rice in two cupfuls of boiling salted water until soft. With this, line a buttered pudding dish on the sides and bottom, leaving a portion for the top. Fill the dish with thinly sliced tart apples and cover with the remainder of the rice. Put the dish in a steamer and steam until the apples are found to be tender by running a fork into them. Set it away to cool, and invert the dish so that the pudding will come out entire. Serve with sweetened cream, thin custard, or fruit sauce. Flavoring may be added to the apple according to taste.

Apple Tapioca Pudding.

Pick over and wash three-quarters of a cup of pearl tapioca. Pour one quart of boiling water over it, and cook in the double boiler until transparent; strain often and add a half teaspoonful of salt. Core and pare seven apples. Put them in a round baking dish and fill the core cavities with sugar and lemon juice.

Pour the tapioca over them and bake until the apples are very soft. Serve hot or cold, with sugar and cream. A delicious variation may be made by using half pears or canned quinces and half apples.

Pudding—Arrowroot.

Mix a tablespoonful in cold milk, and pour it into boiling milk. When cool, add the yolk of an egg well beaten, and a little sugar; put it into a basin, and boil 10 minutes.

Pudding—Bird's-Nest.

Peel tart apples, take out the cores, leaving the apples whole. Make a

custard of 8 well beaten eggs, $\frac{1}{4}$ a pint of cream, and $1\frac{1}{2}$ pints of scalded milk, thickened with a heaped up tablespoonful of flour and a little salt, but no sugar. Bake 20 minutes. When the apples are tender the pudding is done. Serve immediately with butter and sugar stirred to a cream.

Bread Pudding.

One pt. of grated bread crumbs, 1 qt. of milk, yolks of six eggs well beaten, 1 grated lemon, and sugar to taste. Bake. When cold spread a layer of jelly over the top, then make an icing of the whites of the eggs and white sugar, and spread smoothly over the jelly. To be eaten cold without sauce.

Cherry Pudding.

Half a box of gelatine, cupful of canned cherries, cupful of cherry juice, cupful of cherry wine, cupful of sugar, juice of one lemon. Soak the gelatine in a little water until soft. Mix all together, except the wine. Cook for about ten minutes. Add the wine. Put into a mold to harden. Serve with whipped cream.

Chocolate Pudding.

Put one quart of milk in a pan, and let it get very hot. Mix three tablespoonfuls of corn flour and three tablespoonfuls of ground chocolate to a smooth paste with a little cold milk, and stir it into the hot milk. Let it simmer for three minutes, then take it from the fire, and add half a teaspoonful of vanilla and a tablespoonful of sugar. Beat, till light, the yolks of two eggs, and stir them in also. Turn this mixture into a pie dish, and bake it for twenty or thirty minutes. Whisk two whites of eggs to a stiff froth, stir through them a tablespoonful of castor sugar, and whisk again for a few minutes. Pile this roughly over the pud-

ding, and return it to a cool part of the oven for five minutes, to cook the white of egg.

Green-Corn Pudding.

Twelve ears of corn, grated; 3 eggs, well beaten; 1 pint of sweet milk, $\frac{1}{2}$ a cupful of butter, 1 large spoonful of sugar, pepper and salt. Bake in a large pudding-pan 2 hours.

Cottage Pudding.

Two cupfuls of flour, 2 teaspoonfuls of baking powder, $\frac{1}{2}$ teaspoonful of salt, 1 egg, $\frac{3}{4}$ cupful of sugar, 1 cupful of milk, 2 tablespoonfuls of melted butter. Bake in a shallow dish for about a half-hour. Serve with any kind of pudding sauce preferred.

Nameless Pudding.

This delicious pudding is made according to these directions: Take a pint of milk and half a pint of flour and mix them until they are the consistency of cream. Then add three eggs, beaten well, and a pint of sliced peaches or raspberries, place in a double boiler, adding a little sugar to the mixture. When done, the pudding should have risen to the top of the receptacle and must be served at once, as it is not good when cold. Blackberries or huckleberries may be used in place of peaches.

Old-Fashioned English Pudding.

One cupful of suet, one cupful of flour, one cupful of raisins, one cupful of bread crumbs, three tablespoonfuls of molasses. Mix thoroughly. Enough milk to mold into shape. Put into a mold and steam for four hours. Serve with brandy sauce. This can be kept for some time and reheated.

Eve's Pudding.

Six eggs, six apples, six ounces of bread crumbs, six ounces of currants, half a teaspoonful of salt, nutmeg to taste. Boil three hours or steam four. Serve with wine sauce.

Fig Pudding.

One cupful of molasses, one of chopped suet, one of milk, three and a quarter of flour, two eggs, one teaspoonful of soda, one of cinnamon, half teaspoonful of nutmeg, one pint of figs. Mix together the molasses, suet, spice, and the figs cut fine. Dissolve the soda with a tablespoonful of hot water and mix with the milk. Add to other ingredients. Beat the eggs light and stir into the mixture. Add the flour and beat thoroughly. Turn the mixture into a buttered mold and steam five hours. Serve with cream or wine sauce.

Half-Pay Pudding.

Quarter of a lb. of suet, $\frac{1}{4}$ lb. of currants, $\frac{1}{4}$ lb. of raisins, $\frac{1}{4}$ lb. of flour, $\frac{1}{4}$ lb. of bread crumbs, 2 tablespoonfuls of molasses, $\frac{1}{2}$ pint of milk. Chop the suet finely; mix with it the currants (which should be nicely washed and dried), the raisins (which should be stoned), the flour, bread crumbs and molasses; moisten with the milk, beat up the ingredients until all are thoroughly mixed, put them into a buttered basin, and boil the pudding for $3\frac{1}{2}$ hours.

Hamburg Sponge with Whipped Cream.

Heat the juice of two lemons and half a cupful of sugar, add the beaten yolks of eight eggs, and a half cupful of sugar. Cook over hot water until thick. Add half a package of gelatine softened in cold water. Reheat and fold in the beaten whites of eight eggs. Pour in a border mold; when cold, fill the centre with whipped cream.

Lemon Meringue Pudding.

One quart of milk, 2 cupfuls of bread crumbs, 4 eggs, scant half cupful of butter, 1 cupful of white sugar, 1 large lemon, juice, and half the rind grated. Soak the bread in the milk, add the beaten eggs, with the butter and sugar

rubbed to a cream, also the lemon. Bake in a greased dish until firm and slightly brown. Beat the whites to a froth with three tablespoonfuls of fine sugar. Cover the pudding with it and slightly brown.

Indian Meal Pudding.

Into 1 quart of boiling milk stir 1 quart of sifted fine meal; then add 1 quart of cold milk, 2 well beaten eggs, $\frac{3}{4}$ of a cup of sugar, and 1 cup of flour. Stir well and pour it into a buttered dish. Bake 2 hours, and serve with butter.

Orange Pudding.

Boil one pint of milk and add to it a tablespoonful of corn-starch dissolved in a little cold milk, and the yolks of three eggs well beaten. When done let it cool, then pour it over four large oranges which have been peeled, seeded and cut into small pieces and sweetened. Beat the whites of the eggs with a cupful of granulated sugar and spread over the top. Brown slightly in the oven. Serve cold.

Peach Pudding.

Scald the fruit, peel, mash, and sweeten it; beat six yolks and two whites of eggs; mix all together, with a pint of cream; put it into a dish sheeted with cream paste; as the pudding-puff requires a moderate oven, puff-paste would not answer. A cook ought to attend to this, as either the paste or pudding will be spoiled unless she does.

Plum Pudding.

Stew plums, fresh or dried, with sugar to taste, and pour hot over thin slices of baker's bread with crust cut off, making alternate layers of fruit and bread, and leaving a thick layer of fruit for the last. Put a plate on top, and when cool set on ice; serve with sifted sugar, or cream and sugar. This pudding is delicious made with

Boston or baked crackers, split open, and stewed apricots, with plenty of juice, arranged as above. Or, another way, is to toast and butter slices of bread, pour over it hot stewed fruit in alternate layers, and serve with rich hot sauce.

Another.—Pour a cupful of hot milk over a cupful of bread crumbs. When the milk becomes cold add three-fourths of a cupful of sugar, a teaspoonful of salt, the yolks of four eggs, half a pound each of chopped raisins and currants, half a cupful of chopped almonds, half a pound of suet, and spices to taste. Steam for six hours. Serve with brandy sauce or whipped cream.

Another.—Four eggs, 12 crackers, 1 pint of new milk, 1 teacup of butter, half a pound of sugar, 1 lb. of raisins, 1 lb. of prunes, with a finely grated nutmeg. Bake about an hour.

Pudding—Potato.

One lb. of potatoes, boiled, half a lb. of fresh butter, half a lb. of sugar, the yolks of six eggs and the whites of 3, 1 gill of cream, 1 teaspoonful of mace, and 1 nutmeg. Bake in puff-paste.

Prune Whip.

One pound of prunes, whites of six eggs, one cupful of fine sugar. Boil the prunes until tender. Remove the stone and chop fine. Beat the whites of the eggs very stiff; add the sugar and prunes. Put in a buttered pudding dish. Bake in a slow oven in a pan of water for a half hour.

Prune Pudding.

Soak one pound of prunes over night. Cook until soft, and strain through colander. Soak a tablespoonful of gelatine in cold water until soft; stir into the prunes while hot. Let this cool. Beat the whites of four eggs until light. Sweeten to taste. Put into a mould to harden. Beat a pint of

cream to a stiff froth and pour over the pudding just before serving.

Rice Pudding.

Half a pint of rice, 1 quart of milk, $\frac{1}{4}$ of a pint of sugar, nutmeg or cinnamon. Bake it slowly 2 hours. Tapioca may be cooked in the same way, after soaking in warm milk for an hour or two; and sago, after thoroughly washing and soaking over night, is good in the same fashion. It is possible to dilute the milk one-half and yet have the pudding good, if care is exercised in soaking and cooking.

Rice and Apple Pudding.

Pick over and wash a teacupful of the best rice. Steam it until tender in 2 cups of cold water; spread it over a quart or 3 pints of good ripe apples, quartered; pour over 1 or 2 cups of milk, if preferred, or omit the milk and add a little water to the apples. Half a cup of white sugar may be sprinkled over the apples, or sugar may be added at the table, if preferred.

Suet Pudding.

Three cupfuls of flour, one cupful of chopped suet, one cupful of molasses, one cupful of milk, one cupful of raisins and currants mixed. Half teaspoonful of soda, half teaspoonful of cinnamon, half teaspoonful of cloves and allspice. Steam for three hours. Serve with brandy sauce.

Tapioca Pudding.

Four large tablespoonfuls of tapioca soaked over night in 1 quart of new milk; grated rind of 1 lemon; 1 tumbler of sweet milk; one-half of a tumbler of wine, with sugar enough in it to fill the glass. Stir the tapioca and milk over the fire until it comes to a boil, before adding any of the other ingredients; 4 eggs, beaten separately, and added just before baking; it bakes in about 5 minutes. To be eaten cold.

Cream Tapioca Pudding.

Soak three tablespoonfuls of tapioca in water over night. Put the tapioca into a quart of milk in double boiler and cook half an hour. Beat the yolks of four eggs with a cup of sugar, add three tablespoonfuls of grated or prepared cocoanut. Add to milk and cook ten minutes longer. Pour into the pudding dish, beat the whites of the eggs to a froth and stir in two spoons of sugar. Put this over top with a sprinkle of cocoanut and brown for five minutes.

Tomato Pudding.

Pour boiling water on tomatoes, remove the skins, put in the bottom of the pudding dish some bread crumbs, then slice the tomatoes on them, season with sugar, butter, pepper, and salt; add some more bread crumbs, then the sliced tomatoes and seasoning, and if the tomato does not wet the bread crumbs add a little water; then, for a small pudding, beat up 2 eggs and pour over the top. Bake about 20 minutes.

Apple Short Cake.

Pare and slice tart apples enough to fill 2 round pie plates; then make a crust of 1 teacupful of cream, salt and soda; roll an upper crust, and put on and bake; when done turn bottom upwards; put on sugar enough to taste; then turn again, and so on. To be eaten warm.

Orange Short Cake.

Make a crust as for strawberry shortcake, and spread slices of oranges from which the seeds have been removed, between the layers. A little grated cocoanut may be mixed with the orange for variety.

Peach Short Cake.

Make a crust as for strawberry shortcake. Pare very ripe peaches, let them lie in sugar three or four hours. Split and butter the shortcake, then spread on the peaches with more sugar. To be eaten with cream.

Plum Cobbler.

Take one quart of flour, four teaspoons melted lard, one-half teaspoon of salt, two teaspoons of baking powder, mix as for biscuits, with either sweet milk or water, roll thin, and line a pudding dish or dripping-pan, nine by eighteen inches; mix three tablespoons of flour and two of sugar together, and sprinkle over them one coffee cup of sugar; wet the edge with a little flour and water mixed, put on the upper crust, press the edges together, make two openings by cutting two incisions at right angles an inch in length, and bake in quick oven one-half hour.

Strawberry Short Cake.

Sift three heaping teaspoonfuls of baking powder and one teaspoonful of salt with four cupfuls of sifted flour, rub in one teaspoonful of butter and one of lard; then with a fork stir in lightly and quickly sufficient milk to make a soft dough—too soft to roll. Turn it into a greased tin, and bake in a hot oven for thirty minutes. Be sure that it rises evenly. Unmold, and leaving it inverted, cut a circle around the top within one inch of the edge; lift off the circle of crust, and with a fork pick out the crumb from the center, leaving about three-quarters of an inch of biscuit around the sides. Spread the inside of the cake with butter, and then fill it with crushed strawberries, which have been standing half an hour or more mixed with sugar enough to sweeten them. Turn off the juice from the berries before filling the cake. Replace the circle of crust, and cover the whole cake, top and sides, with meringue, heaping it irregularly on the top. Place it in the oven a moment to slightly color the meringue. Arrange a few handsome berries on the top. Serve the strawberry juice as a sauce. Whipped cream may be used instead of meringue, if it may be more convenient. Short-

cake is best when freshly made and should be served as soon as it is finished.

Currant Short Cake.

Currant shortcake has more character than strawberry shortcake, and will some day be very popular. Make the same as strawberry shortcake. Let the currants stand at least two hours with enough sugar to sweeten them. Ornament the meringue on top with a few currants fancifully arranged in lines or circles.

John Wanamaker's Short Cake.

This shortcake consists of alternate layers of bread and butter and syrupy strawberries, with whipped cream on top, served cold. The bread must be sliced a little thicker than for sandwiches, and lightly spread with butter. Crushed strawberries with their syrup must be poured on each slice of bread, as many layers, as you wish, whipped cream on the top layer. This dish must be made two hours before serving so that the bread can become well saturated with the juice of the berries. Serve this cold.

Floating Island.

In a double boiler put one quart of fresh milk—a pail set in a small kettle of boiling water will do. Beat the yolks of four eggs very slightly, and thoroughly stir in the cold milk. Add four tablespoons of sugar. Stir constantly (keeping the water in the outside kettle boiling) until smooth and thick as cream; remove immediately and flavor with one-half teaspoonful of vanilla. Have the whites beaten to a froth and put it on the custard in spoonfuls for the islands.

Apples—Floating Island of.

Bake or scald 8 or 9 large apples; when cold, pare them and pulp them through a sieve. Beat up this pulp

with sugar, and add to it the whites of 4 or 5 eggs previously beaten up with a small quantity of rose water. Mix this into the pulp a little at a time, and beat it until quite light. Heap it up on a dish, with a rich custard or jelly round it.

Stewed Apples.

Pare, quarter and core six or eight tart apples; put them into a granite kettle, cover with one cup or less of sugar, add juice of half a lemon and a few bits of the yellow rind; cover with boiling water and simmer (not boil) until tender. Dish carefully without breaking, and serve cold.

Stewed Prunes.

Put on one pound of prunes in a brass pan, with cold water to cover them, boil for one minute, and drain. Extract the stones from them, return to the pan along with the water in which they were boiled, add two ounces of sugar, and boil slowly for fifteen minutes. If liked the kernels may be extracted, by breaking the stones, then blanching and removing the skins, and served with the prunes on a glass dish.

Stewed Rhubarb.

To four pounds of rhubarb allow one pint and a half of water, and one pound and a half of sugar. Wipe the rhubarb with a clean towel, but do not peel it, and cut it into pieces an inch and a half long. Put on the sugar and water in a brass pan, let it boil, then put in the rhubarb, and let it simmer till tender, taking care it does not break. It is better to watch it while cooking, and lift out the pieces with a spoon as they become tender, before breaking down. When it is all dished reduce the syrup by boiling a little longer, and pour over it.

Baked Apples.

Select moderately tart or very juicy sweet apples, of equal size. Wash

them, remove the cores (or at least the blossom ends) and any imperfections, with the skin also, if it is objectionable. Put in a shallow baking dish, and fill the cavities with sugar and such flavoring as seems to be demanded, allowing from one-third to one-half of a cup of sugar and about one-fourth of a teaspoonful of nutmeg or cinnamon to eight apples, with sometimes the juice and grated rind of half a lemon. Cover the bottom of the dish with boiling water (which may need to be replenished if the fruit is not very juicy), and bake in a hot oven until soft, basting often with the syrup in the dish. Sweet apples need to bake longer and more slowly than sour, and when done should be very soft. Set the baking dish in a cool place until the fruit is almost cold, then transfer the apples to a glass dish and pour the syrup, which should be thick and amber-colored, around them.

Apple Snow.

Put 12 good tart apples in cold water, and set them on a slow fire; when soft, drain off the water, strip the skins from the apples, core and lay them in a large glass dish. Beat the whites of 12 eggs to a stiff froth, put $\frac{1}{2}$ a pound of powdered white sugar to the apples; beat them and add the eggs. Beat the whole to a stiff snow, and turn into a dessert-dish.

Apple Slum.

Pare good cooking apples, put in an earthen dish with sugar, butter, and water enough for juice. Make a paste as for biscuit, only thin enough to spread easily with a spoon. Spread over the apples and bake $\frac{3}{4}$ of an hour. Berries and prunes may be used instead of apples, and make an equally palatable dish. Serve with a nice sauce.

Apples in Bloom.

Select eight red apples, cook in boiling water until soft, turning them often. Have water half surround apples. Remove skins carefully, that the red color may remain, and arrange on a serving dish. To the water add one cup sugar, grated rind one-half lemon, and juice one orange; simmer until reduced to one cup. Cool, and pour over apples. Serve with sweetened whipped cream or cream sauce.

Peach Sponge.

One can of peaches (drained and beaten very fine), one-half cup good gelatine, one cup sugar (scant), one cup of water, four eggs (whites only) well beaten. Dissolve the gelatine in half a cup of water, soaking two hours. Boil sugar and water to a syrup; into it pour the peaches and juice that was drained off the peaches, boiling all a few minutes. Add gelatine, and boil two or three minutes. Remove from the fire and let cool; then add whites of eggs, beating all together until the mixture will separate. Pour into molds, and serve with cream.

Lemon Sponge.

Juice of four lemons, four eggs, cupful of sugar, half a package of gelatine, pint of cold water. Soak the gelatine in half cupful of the water, squeeze the lemons onto the sugar. Beat the yolks of the eggs and add to the remainder of the water. Add sugar and lemon to this. Cook until it thickens; add the gelatine. Strain into a dish and place in ice water. When cool add the whites of the eggs well beaten. Beat constantly until it becomes very thick. Turn into a mold. Serve with thin custard.

Roly Poly.

Take one quart of flour, make a good biscuit crust, roll out one-half inch thick and spread with pitted sour cherries. Fold so that the fruit will not

run out, dip a linen cloth in boiling water; sift flour over it and lay the pudding in it, tying ends together, leaving room for it to swell. Steam three-fourths of an hour and serve with boiled sweet sauce.

Scalloped Apples.

Mix half a cup of sugar and an eighth of a teaspoonful of cinnamon or the grated rind of half a lemon. Melt half a cup of butter and stir it into one pint of soft bread crumbs; prepare three pints of sliced apples. Butter a pudding dish, put in a layer of crumbs, then sliced apple, and sprinkle with sugar; then another layer of crumbs, apple and sugar, until the materials are used. Have a thick layer of crumbs on top. When the apples are not juicy, add half a cup of cold water; and if not tart apples, add the juice of half a lemon. Bake about an hour, covering at first to prevent burning. Serve with cream. Ripe berries and other acid fruits may be used instead of the apples, and oat-meal or cracked-wheat mush in place of the bread crumbs.

Baked Apple Dumplings.

Make a short pie-crust; roll it thin and cut it into squares large enough to cover an apple. Select apples of the same size, core and pare them, and fill the space with sugar, butter, and a little ground cinnamon or nutmeg. Place an apple in each square of pie-crust; wet the edges with water or white of egg, and fold together so that the points meet on the top. Pinch and turn the edges so that they are fluted. Bake in a moderate oven about forty minutes, or until the apples are soft without having lost their form. Serve with hard sauce or with sugar and cream.

Brown Betty.

Chop the apples fine. Put into a buttered pudding dish alternate layers of the apples and bread crumbs. Be-

tween each layer put small lumps of butter, sprinkling with sugar and cinnamon. Have the top layer of bread crumbs mixed with a little melted butter. Bake and serve hot with cream and sugar or any sauce preferred.

Apple Compote.

Make a syrup with one cup of sugar, one cup of water, and a square inch of stick cinnamon. Boil slowly for ten minutes, skimming well. Core and pare eight or ten tart apples and cook until nearly done in the syrup. Drain, and cook them for a few minutes in the oven, with the door open. Boil the syrup until almost like a jelly. Arrange the apples on a dish for serving, fill the core cavities with jelly or marmalade, and pour the syrup over them. Put whipped cream around the base and garnish the cream with jelly.

Cherry Compote.

Simmer five ounces of sugar with a half-pint of water for ten minutes; throw into the syrup a pound of cherries weighed after they are stalked, and let them stew gently for twenty minutes; it is a great improvement to stone them, but a larger quantity will be required for a dish.

Plum Compote.

Boil six ounces of sugar with half a pint of water to each pound of plums, the usual time; simmer the plums very softly for twenty minutes; increase the proportion of sugar if needed, and regulate the time as may be necessary for different varieties of the fruit.

Another.—Four ounces of sugar and half a pint of water, to be boiled ten minutes; one pound of plums to be added, and simmered gently for ten or twelve minutes.

Peaches for Tea.

Pare ripe peaches, cut them in quarters, sprinkle well with layers of sugar, and let them stand an hour to extract

the juice; then cover with rich sweet cream, and there is nothing better.

Jelly—Sago.

Boil a teacupful of sago in 4 pints of water, till quite thick; when cold, add a pint of raspberry juice, pressed from fresh fruit, or half the quantity of raspberry syrup; add enough loaf sugar to sweeten it, boil it fast for 5 minutes, and put it into a shape which has been steeped in cold water; pour a little cream over the jelly in the dish.

Spanish Bun.

Rub to a cream one pint of sugar and two-thirds of a cupful of butter. Add four well beaten eggs, one cupful of milk, one pint of flour, which has been sifted together with two teaspoonfuls of baking powder, half a teaspoonful of cloves, one teaspoonful of cinnamon. Bake in a low pan. Frost with white frosting.

Steamed Apple Dumplings.

Core and pare six or eight apples. Make a biscuit dough, using four cups of flour, two heaping-teaspoonfuls of baking powder, one large tablespoonful of butter, one teaspoonful of salt, and cup of milk. Use more or less milk as is needed to make a soft dough that will roll out without being sticky. Roll the dough about half an inch thick and cut in squares to cover the apples, after sweetening and flavoring. Place the dumplings on a dinner plate which can be set in the steamer. Steam forty minutes and serve from the same plate, with hard sauce or sweetened cream. A variation of this recipe, which is sometimes more convenient, is as follows: Cut the apples into eighths, and put them, with half a cup of water, into a granite pudding pan; roll the biscuit dough out to fit the pan, and cover the apples; cover the pan, and steam or cook in the oven. Sprinkle sugar

thickly over the top and serve in the pudding pan, with hard sauce in another dish.

Friar's Omelet (Apple Dish).

Stew six or seven good-sized apples as for apple-sauce; when cooked and still warm, stir in one teaspoonful of butter and one cupful of sugar; when cold, stir in three well beaten eggs and a little lemon juice. Now put a small piece of butter into a saucepan, and, when hot, add to it a cupful of bread crumbs and stir till they assume a light-brown color. Butter a pudding mold, and sprinkle on the bottom and sides as many of these bread crumbs as will adhere; fill in the apple preparation, sprinkle bread crumbs on top, bake it for fifteen or twenty minutes, and turn it out on a good-sized platter. It can be eaten with or without a sweet sauce.

Pears—To Bake.

Take ripe pears and wipe them carefully; place a layer stem upward in a stone jar; sprinkle over sugar; then set in another layer of pears, and so on till the jar is filled. To every gallon put in $1\frac{1}{2}$ pints of water. Cover the top of the jar with pie-crust, and set in a slow oven for 2 hours.

Apple Trifle.

Stew six large apples; sift them, and add sugar, butter and nutmeg as for pies. Put in a deep dish. Take a pint of cream and 1 of milk and boil them. When boiling, add the beaten yolks of 6 eggs, and sugar. Stir until thick. When cold, pour it over the apple, bake, and when nearly done spread the whites of the eggs, beaten with lemon and sugar, on the top, and let it brown delicately.

Arrowroot Blanc-Mange.

A teacupful of arrowroot to a pint of milk; boil the milk with 12 sweet and 6 bitter almonds blanched and beaten;

sweeten with loaf sugar, and strain it: break the arrowroot with a little of the milk as smooth as possible; pour the boiling milk upon it by degrees, stirring the while; put it back into the pan, and boil a few minutes, still stirring; dip the mold in cold water before you put it in, and turn it out when cold.

Boiled Cider Sauce.

Delicious for fruit puddings. Rub to a light cream two coffee-cupfuls of white sugar and three-fourths of a coffee-cup full of butter. Beat into it gradually a half a teacup full of boiled cider. Just before serving set the sauce in a kettle of boiling water until hot, but don't let it boil.

Lemon Sauce.

Melt 2 oz. of butter in a little water; put in 2 oz. of sugar, the juice and grated rind of half a lemon, and the pulp and juice of the other half. Boil together 5 minutes, and serve hot for cold puddings.

Wine Sauce.

One cupful boiling water, one tablespoonful corn-starch, one-fourth cupful

of butter, one cupful of powdered sugar, one egg, one-half cupful wine.

Mix the corn-starch in cold water, and stir into the boiling water. Boil ten minutes. Rub the butter and sugar to a cream, add the egg well beaten. When the corn-starch has cooked ten minutes, add the wine and pour the boiling mixture into the egg mixture and stir until thoroughly mixed.

Chocolate Blanc-Mange.

Take $\frac{1}{4}$ lb. of sweet German chocolate, $\frac{1}{2}$ a box of gelatine, 1 quart of milk, one coffee-cupful of sugar. Put it all in a dish, set in a kettle of water, and let it boil an hour. When nearly cold, turn into the mold.

Corn-Starch Blanc-Mange.

Boil 1 quart of sweet milk; stir into it gradually 5 tablespoonfuls of corn-starch, mixed with milk; add salt, and only 2 large spoonfuls of loaf sugar, and stir until thoroughly cooked. When done, take it from the fire, and when cooled add lemon and vanilla, and pour it into molds. Serve with jelly or fresh fruit, and whipped cream flavored like the pudding.

ICE CREAMS. ICES. SOUFFLES.

Ice Cream.

Have rich, sweet cream, $\frac{1}{2}$ a lb. of loaf sugar to each quart of cream or milk. If you cannot get cream, the best imitation is to boil a soft custard, 6 eggs to each quart of milk (eggs well beaten). Or another is made as follows: Boil 1 quart of milk, and stir into it, while boiling, 1 tablespoonful of arrowroot wet with cold milk; when cool, stir into it the yolk of one egg to give it a rich color. Five minutes' boiling is enough for either plan. Put the sugar in after they cool; keep the same proportions for any amount desired. Or thus: To 6 quarts of milk add half a pound of Oswego starch, first

dissolved; put the starch in 1 quart of the milk; then mix all together, and simmer a little (not boil); sweeten and flavor to your taste; excellent. The juice of strawberries or raspberries gives a beautiful color and flavor to ice-creams, or about $\frac{1}{2}$ oz. essence or extracts to 1 gallon, or to suit the taste. Have your ice well broken; 1 quart of salt to a bucket of ice.

Ice Cream.

(General Recipe).—Two quarts thick cream, 1 pound A sugar, $\frac{1}{4}$ ounce French gelatine, yolks 3 eggs; add 1 quart of the cream and gelatine, set on the fire; stir; do not let boil; melt; set

off, add the eggs and sugar stirred up together with a little of the cream, stirring all the time; set on, let get hot; set off, add the other quart of cream; stir, strain, freeze. Break your ice fine, use salt from one pint to one quart. Flavor after it is frozen.

Almond Ice Cream.

Select the best paper-shell almonds; remove the shell and put them into boiling water for a minute, or until the skin can be rubbed off easily; then drain, put them in cold water and remove the brown skin; dry them on a towel. There should be $\frac{1}{4}$ pound of the selected nuts; pound them in a mortar with a few drops of rose-water, and $\frac{1}{4}$ cup each of sugar and cream, till like a fine paste. Make the Philadelphia ice-cream with a scant cup of sugar and add to it when well chilled, a few drops of bitter almond extract, a tablespoonful of vanilla, and the nut paste; mix it thoroughly, freeze again, and when hard let it stand 2 hours to ripen. Nut ice-creams require a long time to freeze and ripen, owing to their oily nature.

Banana Ice Cream.

Peel 6 ripe bananas, split and remove the seeds and dark portion in the center; rub the pulp through a puree strainer; add to it the juice of one lemon, a tablespoonful of salt, and sugar to make it quite sweet; add this pulp to either recipe for ice-cream, and freeze as usual.

Brown Bread Ice Cream.

To make a quart shape, toast three slices of bread in the oven till brown, put one of them in a saucepan with half a pound of loaf sugar, half a pint of milk, two small sponge cakes, and one pint of cream; stir over a slow fire till it boils, then strain through a sieve, let it stand till cold, and freeze as Lemon Water Ice. When stiff, add the other two slices of bread pounded

and sifted, along with one glass of maraschino or sherry wine, and turn out as directed for Lemon Water Ice.

Caramel Ice Cream.

Put a small cupful of sugar in an iron frying-pan and stir over the fire until it melts, turns brown, boils and smokes; put it into one pint of boiling water and stand away to cool. When cold add a cupful of sugar, one quart of cream and a tablespoonful of vanilla. Mix well and freeze.

Ginger Ice Cream.

To make a quart shape, bruise six ounces of preserved ginger in a mortar with half a pint of milk, strain through, upon half a pound of ground loaf sugar, add the juice of two small lemons, and mix all together with one pint of cream. When half frozen, add two ounces of preserved ginger, cut in small pieces, and turn out as directed for Lemon Water Ice.

Harlequin Ice Cream.

This is a mixture of creams of different colors, served together. Sometimes they are molded together either in uniform layers or irregularly, so that when turned out and served they have a streaked or mottled effect. Chocolate or pineapple, strawberry, pistachio, and vanilla, make a pleasing variety.

Lemon Ice Cream.

To make a quart shape, rasp the rind of two lemons on a piece of loaf sugar, scrape it into one pint of cream, a little milk, half a pound of ground loaf sugar, and the juice of two lemons, mix all together. Freeze, and finish as directed for Lemon Water Ice.

Another Way.—Cut the rind of two lemons very thin into one pint of milk, half a pound of sugar, and a small piece of stick cinnamon, put it on in a saucepan, and boil slowly for

ten minutes; then strain into a basin, let it stand till cold, add the juice of two lemons, and one pint of cream. Freeze, and turn out 'as directed for Lemon Water Ice.

Moss Ice Cream, Mousse.

This form of a "Frozen Dainty" has a frothy, moss-like texture, produced by freezing whipped cream without stirring it during the process of freezing. A great variety of delicate dishes may be made by varying the flavoring and molding the mousse alone, or in sherbet or ice-cream of a contrasting shade and agreeable flavor. The following rules will illustrate the preparation of the cream and the manner of freezing: Sweeten and flavor a pint of cream. Use vanilla, lemon, caramel, melted chocolate, sherry wine, or maraschino. Place the bowl containing the cream in a pan of broken ice or snow, and have ready a granite or bright tin pan placed in another of broken ice. Put a sieve or puree strainer into the pan. Pack a plain mold or the freezer can, minus the beaters, in broken ice and salt, that it may become icy cold. Whip the cream with an egg-beater, skim off the froth and put it into the strainer. If any liquid part drain through into the pan, put it back into the bowl and whip again; when all is whipped put it into the mold or can. Pack it in close enough to fill all the spaces, but be careful not to break up the froth. Cover the mold and let it stand 3 or 4 hours. When a fluted or fancy mold is used the mousse will turn out better if the mold is first lined with ice-cream or sherbet frozen just stiff enough to pack in smoothly.

Peach Ice Cream.

Pare 2 quarts of ripe white peaches cut them fine and mash quickly with a wooden masher; then add 1 cup of sugar and a few of the peachstone

meats, and keep it closely covered until the sugar is dissolved. Make the ice-cream after either recipe, and when the cream is thoroughly chilled strain the peach pulp through coarse cheesecloth and stir it into the cream. Freeze as usual.

Philadelphia Ice Cream.

One quart cream, 1 scant cup sugar; flavor to taste. This is a name generally applied in this country to all ice-creams made with pure cream and no eggs. There are three ways of making this ice cream. First. Mix the sugar and flavoring with the cream, and when the sugar is dissolved strain it into the freezer. This is the quickest and easiest method; the cream increases in bulk considerably and is of a light snowy texture. 2d. Whip the cream until you have taken off a quarter of the froth, mix the sugar and flavoring with the unwhipped cream, strain into the freezer, and when partly frozen add the whipped cream and freeze again until stiff. This gives a very light delicate texture to the cream. 3rd. Heat the cream in a double boiler until scalding hot, melt the sugar in it, and when cold add the flavoring. This is considered by many the best method, as the cream has a rich body and flavor, and a peculiarly smooth, velvety appearance. It also prevents the cream from turning sour. The cream may be whipped first, and the froth removed until you have a pint, then scald the remainder of the cream with sugar, and when cold add the whipped cream. Thin cream or single cream is rich enough for ice-cream, but it should be all cream, and not thick cream diluted. When milk is used with thick cream, eggs or flour should be used to thicken the milk, or the milk should be well scalded with the cream.

Pineapple Ice Cream.

To make a quart shape, bruise in a mortar half a pound of pineapple with

half a pound of ground loaf sugar, add the juice of a large lemon, rub them well together, and pass through a sieve into one pint of cream and a little milk. When nearly frozen, add a few thin slices of pineapple, and turn out as directed for Lemon Water Ice.

Mock Pistachio Ice Cream.

Make the almond ice-cream as directed, and color it green with the pistach coloring. The flavor of the pistachio nuts is similar to the sweet almond, and as the real pistachio nuts are expensive, a very good imitation may be made in this way.

Raspberry Ice Cream

Is made the same as strawberry, by substituting raspberries for strawberries.

Another.—The same as strawberry. These ices are often colored by cochineal, but the addition is not advantageous to the flavor. Strawberry or raspberry jam may be used instead of the fresh fruit, or equal quantities of jam and fruit employed. Of course the quantity of sugar must be proportionately diminished.

Ratafia Ice Cream.

To make a quart shape, beat the yolks of two eggs with four ounces of ground sugar, put them in a clean saucepan with one pint of cream, half a pint of milk, four ounces of sugar, and two ounces of ratafia biscuits; stir over a slow fire till it boils, then strain through a sieve, and add the juice of a small lemon. When frozen, add two ounces of ratafia biscuits pounded and sifted, one glass of maraschino or sherry wine, and turn out as directed for Lemon Water Ice. If wanted pink, add a little cochineal.

Strawberry Ice Cream.

Sprinkle 2 cups of sugar over 2 quarts of strawberries; mash them and let them stand $\frac{1}{2}$ hour or until the sugar is dissolved. Meanwhile prepare the

ice and pack the freezer; turn the berries into a large square of cheese-cloth which has been placed over a bowl; gather up the edges of the cloth, twist them, and squeeze as long as any juice or pulp will come; then empty the pulp and seeds left in the cloth into a pan and pour on gradually about 1 pint of milk, mix it well with the pulp until the pulp is separated from the seeds; squeeze again until perfectly dry. There should be nothing left in the cloth save a ball of seeds. The pulp will thicken the milk, and it is much nicer than the juice alone. Add to this pulpy juice as much cream as you may have, from 1 cup to 3 pints, and sugar to make it very sweet. The cream should be scalded and cooled. Freeze as usual. This is delicious and a great improvement over that made by simply mashing the fruit, where the presence of the seeds is objectionable. Make other berry ice-cream in the same manner.

Another.—Take 1 pint of strawberries, 1 pint of cream, nearly $\frac{1}{2}$ a lb. of powdered white sugar, and the juice of a lemon; mash the fruit through a sieve, and take out the seeds, mix with the other articles, and freeze; a little new milk added makes the whole freeze more quickly.

Another.—To make a quart shape, bruise three-quarters of a pound of fresh scarlet strawberries and half a pound of strawberry jam through a sieve into six ounces of ground loaf sugar, half a pint of sweet milk, the juice of two lemons, and one pint of cream, mix all together, and add a little cochineal. Freeze, and turn out as directed for Lemon Water Ice. If fresh strawberries cannot be procured, use strawberry jam.

Strawberry Sherbet.

Three-quarters of a pint of strawberry juice, one cupful of sugar, three-quarters of a pint of water, juice of one

lemon. Boil the sugar and water together for fifteen minutes, add the lemon and strawberry juice. Strain and freeze.

Apricot Water Ice.

To make a quart shape, boil one pound of loaf sugar in a pint of water for ten minutes, rub through a fine sieve six very ripe apricots, pound the kernels, mix, and add the juice of two lemons. Freeze, and turn out as directed for Lemon Water Ice.

Red Currant Water Ice.

Is made the same as strawberry, by substituting one pound and a half of red currants, and a few raspberries, to heighten the color.

Ginger Water Ice.

To make a quart shape, boil three-quarters of a pound of loaf sugar and three-fourths of a pint of water for eight minutes, pound four ounces of preserved ginger in a mortar with half a pint of cold water, mix all together; add the juice of two lemons, and two ounces of preserved ginger cut in thin slices; color with a little cochineal. Freeze, and turn out as directed for Lemon Water Ice.

Grape Water Ice.

To make a quart shape, boil one pound of loaf sugar in a pint of water for ten minutes, then add the juice of three lemons, the rind of one orange rasped, half a pint of cold water, two glasses of grape syrup, one glass of sherry wine, one of the extract of elderberry blossom, and strain. Freeze, and turn out as directed for Lemon Water Ice.

Lemon Water Ice.

To make one quart shape, boil one pound of loaf sugar with a pint of water for ten minutes, then add the juice of six lemons and two oranges, half a pint of cold water, one teaspoonful of the infusion of hay-saffron, or the rind of

an orange rasped on a piece of loaf sugar, to color the mixture; mix all together and pour through a gravy strainer into a freezer. Break into small pieces about fourteen pounds of rough ice, mix it with four pounds of coarse salt, put some of it into a pail, then place in the freezer, surround it with ice and salt, and turn till nearly stiff. If wanted for dinner, put it into an ice shape, and put a piece of white paper between the cover and the shape, to prevent it from sticking; let it stand about two hours, pour the water off should it rise above the mold, and add a little more ice and salt. When wanted, take the mold out of the ice, wash it well in cold water, take off the cover and paper, turn up and shake it till you feel it loosening, then put it on a crystal dish, and draw off the mold.

Orange Water Ice.

To make a quart shape, rasp three oranges on a piece of loaf sugar and scrape it into the juice of six oranges, and two lemons, half a pint of cold water, and one pound of loaf sugar boiled for ten minutes in one pint of water, mix all together and pour through a gravy strainer. Freeze, and turn out as directed for Lemon Water Ice.

Pineapple Water Ice.

To make a quart shape, boil one pound of loaf sugar in a pint of water for ten minutes, pound in a mortar three-quarters of a pound of pineapple till very fine, add the juice of one lemon and the sugar, mix well, and strain. Freeze, and turn out as directed for Lemon Water Ice.

Strawberry Water Ice.

To make a quart shape, boil one pound of loaf sugar in one pint of water for ten minutes, mix it either with the juice of one pound of fresh strawberries, or one pound of strawberry jam pressed through a sieve, mix and add the juice

of two lemons, half a pint of cold water, and a little cochineal. Freeze, and turn out as directed for Lemon Water Ice.

Raspberry Water Ice.

Is made the same as above, by substituting raspberries for strawberries.

Junket.

Sweeten to taste, one quart fresh milk; stir in one tablespoonful of liquid rennet and pour into glass dish. Set near the stove where it will get warm and as soon as it begins to thicken, set on ice. Serve with preserves and cream.

Fruit Cream.

Peel four bananas, mash and rub through a sieve; add pulp and juice of two oranges, one teaspoonful lemon juice, one of sherry wine, two-thirds cup of powdered sugar, and one and one-fourth teaspoonfuls of granulated gelatine dissolved in one-fourth cup boiling water. Cool in ice-water, stirring constantly, and put in whip from two cups of cream.

Frozen Milk Punch.

Freeze together one quart of milk and one-half pound of sugar. After it is frozen, add a glass of rum and one pint of whipped cream with a grating of nutmeg; pack in ice for an hour before serving. If the rum is not liked, use brandy, or the brandy that has covered brandy peaches, strained through a fine cloth, may be used.

Frozen Peaches.

Two quarts very ripe, luscious peaches peeled and sliced; sprinkle with a pound of granulated sugar and let stand an hour; mash, add one quart of cold water and freeze as you would ice-cream. Serve with whipped cream very cold.

Apple Glace.

Peel and core some apples, lay them in a baking dish, and pour over them a half cupful of cold water; put in a hot

oven and when they begin to cook sift granulated sugar over them. Cook until soft, but not until they lose their shape. Make a syrup of a cupful of sugar and a half-cupful of water, and a tablespoonful of lemon juice; add to the syrup two tablespoonfuls of blanched almonds, cut in bits, two tablespoonfuls of chopped raisins, two of chopped candied cherries. Put these into the syrup and pour over apples. Serve cold.

Iced Cheese.

Separate the yolks from the whites of three eggs, beat the yolks with one teaspoonful of dry mustard, a little white pepper and salt, then add half a pint of cream and four ounces of grated cheese, and mix well. Switch up the whites of the eggs till very stiff and light, and mix together carefully and lightly. Freeze in the usual way in a square or oblong mold, and, just before serving, turn out and cut into pieces one inch and three-quarters long, one inch broad, and a quarter of an inch thick. Dish in a circle, the slices overlapping each other, with lettuce or endive in the center.

Iced Cheese, No. 2.

Melt in a saucepan three ounces of grated cheese, with half a pint of milk, then let it get cold, and mix it with a small teacupful of cream, one teaspoonful of dry mustard, and a little pepper and salt. Pour into a square mold, and freeze in the usual way. When wanted, turn out and cut into small cakes about two inches long by an inch and a quarter broad, and dish in a circle, the one overlapping the other.

Apple Souffle.

Six or eight apples, some white sugar, yolks and whites of 3 eggs, $\frac{1}{4}$ of a pint of cream or new milk, sugar to taste. Peel and cut the apples; boil them with a little white sugar, and mash them smooth. Make a custard with the

yolks of 3 well-beaten eggs, a $\frac{1}{4}$ of a pint of cream or new milk, and white sugar to taste. Have the apples and custard ready; make a ring round the dish with the apples, and put the custard in the middle. Whisk the whites of the eggs to a stiff froth, and put them over the custard and apples. Sift sugar over it, and bake it in a moderate oven.

Another.—One pint of steamed apple, one tablespoonful of melted butter, half cupful of sugar, whites of six eggs, yolks of three, a slight grating of nutmeg. Stir into the hot apple the butter, sugar, and nutmeg, and the yolks of the eggs well beaten. When this is cold beat the whites of the eggs to a stiff froth, and stir into the mixture. Butter a three pint dish and turn the soufflé into it. Bake thirty minutes in a moderate oven. Serve immediately with any kind of sauce.

Chocolate Soufflé.

Melt one ounce and a half of chocolate over hot water; beat the yolks of four eggs until light. Add the chocolate and one cupful of sugar gradually, constantly beating. Add a teaspoonful of vanilla, and fold into the mixture the stiffly beaten whites of four eggs. Turn into a baking dish, buttered, and bake standing in a pan of hot water for half an hour. Serve with cream and sugar immediately.

Lemon Soufflé.

Beat the whites of four eggs until they are stiff and dry; beat the yolks thoroughly, add to them six tablespoonfuls of powdered sugar and the rind and juice of one lemon. Fold the whites into the mixture and bake in a slow oven for fifteen minutes.

PRESERVES, JELLIES, CANNED FRUITS.

Canning Fruit.

The principle should be understood, in order to work intelligently. The fruit is preserved by placing it in a vessel from which the external air is entirely excluded. This is effected by surrounding the fruit by liquid, and by the use of heat to rarify and expel the air that may be entangled in the fruit or lodged in its pores. The preservation does not depend upon sugar, though enough of this is used in the liquid which covers the fruit to make it palatable. The heat answers another purpose; it destroys the ferment which fruits naturally contain, and as long as they are kept from contact with the external air they do not decompose.

The Vessels in which fruits are preserved are tin, glass, and earthenware. Tin is used at the factories where large quantities are put up for commerce, but is seldom used in families, as more

skill in soldering is required than most persons possess. Besides, the tins are not generally safe to use more than once. Glass is the preferable material, as it is readily cleaned and allows the interior to be frequently inspected. Any kind of bottle or jar that has a mouth wide enough to admit the fruit and that can be securely stopped, positively air-tight—which is much closer than water-tight—will answer. Jars of various patterns and patents are made for the purpose, and are sold at the crockery and grocery stores. These have wide mouths, and a glass or metallic cap which is made to fit very tightly by an India-rubber ring between the metal and the glass. The devices for these caps are numerous, and much ingenuity is displayed in inventing them. We have used several patterns without much difference in success, but have found there was some difference in the

facility with which the jars could be opened and closed. The best are those in which atmospheric pressure helps the sealing, and where the sole dependence is not upon screws or clamps. To test a jar, light a slip of paper and hold it within it. The heat of the flame will expand the air and drive out a portion of it. Now put on the cap; when the jar becomes cool the air within will contract, and the pressure of the external air should hold the cover on so firmly that it cannot be pulled off without first letting in air by pressing aside the rubber or by such other means as is provided in the construction of the jar. When regular fruit jars are not used, good corks and cement must be provided.

Cement is made by melting $1\frac{1}{4}$ oz. of tallow with 1 lb. resin. The stiffness of the cement may be governed by the use of more or less tallow. After the jar is corked, tie a piece of stout drilling over the mouth. Dip the cloth on the mouth of the jar into the melted cement, rub the cement on the cloth with a stick to break up the bubbles, and leave a close covering.

The Process.—Everything should be in readiness, the jars clean, the covers well fitted, the fruit picked over or otherwise prepared, and cement and corks, if these are used, at hand. The bottles or jars are to receive a very hot liquid, and they must be gradually warmed beforehand, by placing warm water in them, to which boiling water is gradually added. Commence by making a syrup in the proportion of a pound of white sugar to a pint of water, using less sugar if this quantity will make the fruit too sweet. When the syrup boils, add as much fruit as it will cover, let the fruit heat in the syrup gradually, and when it comes to a boil ladle it into the jars or bottles which have been warmed as above directed. Put in as much fruit as possible, and

then add the syrup to fill up all the interstices among the fruit; then put on the cover or insert the stopper as soon as possible. Have a cloth at hand dampened in hot water to wipe the necks of the jars. When one lot has been bottled, proceed with more, adding more sugar and water if more syrup is required. Juicy fruits will diminish the syrup much less than others. When the bottles are cold, put them away in a cool, dry, and dark place. Do not tamper with the covers in any way. The bottles should be inspected every day for a week or so, in order to discover if any are imperfect. If fermentation has commenced, bubbles will be seen in the syrup, and the covers will be loosened. If taken at once, the contents may be saved by thoroughly reheating.

Another way.—Prepare a syrup and allow it to cool. Place the fruit in the bottles, cover with the syrup and then set the bottles nearly up to their rims in a boiler of cold water. Some wooden slats should be placed at the bottom of the boiler to keep the bottles from contact with it. The water in the boiler is then heated and kept boiling until the fruit in the bottles is thoroughly heated through, when the covers are put on, and the bottles allowed to cool. It is claimed that the flavor of the fruit is better preserved in this way than by the other.

What may be Preserved.—All the fruits that are used in their fresh state or for pies, etc., and Rhubarb, or Pie-plant, and Tomatoes. Green Peas, and Corn, cannot be readily preserved in families, as they require special apparatus. Strawberries. Hard fleshed sour varieties, such as the Wilson, are better than the more delicate kinds.

Currants need more sugar than the foregoing. Blackberries and Huckleberries are both very satisfactorily preserved, and make capital pies. Cherries and plums need only picking over.

Peaches need peeling and quartering. The skin may be removed from ripe peaches by scalding them in water or weak lye for a few seconds, and then transferring them to cold water. Some obtain a strong peach flavor by boiling a few peach meats in the syrup. We have had peaches keep three years, and were then better than those sold at the stores. Pears are pared and halved, or quartered, and the core removed. The best, high-flavored and melting varieties only should be used. Coarse baking pears are unsatisfactory. Apples. Very few put up these. Try some high-flavored ones, and you will be pleased with them. Quinces. There is a great contrast between quinces preserved in this way and those done up in the old way of pound for pound. They do not become hard, and they remain of a fine light color. Tomatoes require cooking longer than the fruits proper. Any intelligent person who understands the principle upon which fruit is preserved in this way, will soon find the mechanical part easy of execution and the results satisfactory.

Serving Canned Goods.

All canned goods should be opened several hours before using. It takes away the flat taste they are apt to have. Turn them into an earthen dish.

Canned Apples.

To four pounds of apples use one pound of sugar, the juice and yellow rind of one lemon, and one quart of water. Choose fine ripe Pippins or sound, sweet apples. Pare, core, and throw them into cold water. When you have sufficient to fill one or two jars, lift them carefully from the water, weigh, then put them in a porcelain-lined kettle, cover with boiling water, bring quickly to the boiling point, and then stand them over a moderate fire, where they will scarcely bubble, until tender. While they are cooking, put

the sugar and water into another kettle, stir with a clean wooden spoon until the sugar is thoroughly dissolved, add the lemon, and boil three minutes. With a perforated skimmer lift the apples from the water, hold a moment until drained, and then slide them carefully into the boiling syrup; continue until the bottom of the kettle is covered; boil until the apples are sufficiently tender to admit a straw, then lift them carefully and slide one at a time into the jar. The jar should be thoroughly cleaned and heated and set on a folded wet towel. After passing a silver spoon handle around the inside of the filled jar to break any air bubbles present, screw on the top as quickly as possible. Stand the jars in a warm place in the kitchen over night, and in the morning again tighten the covers and put away in a cool, dark, dry closet.

Canned Cherries.

Allow three-quarters of a pound of sugar to every pound of cherries. Put into a porcelain-lined kettle; cook sufficient to fill one jar only at a time; bring slowly to boiling-point; simmer until the cherries are soft, without being broken, skim and can. All large cherries may be canned in the same manner, first pricking the skins to prevent cracking.

Another.—Wash and put whole in a syrup made in the proportion of a pint of water and a pound of sugar to every two pounds of fruit; boil for eight minutes; can and seal immediately.

Canned Grapes.

Take ripe grapes, pick from the stems, and wash well. Put them into cans and place the lid on loosely. Set the cans on cloths or a wooden rack in a boiler, surround the cans with water two-thirds their height; boil until thoroughly cooked. Fill up shrinkage

from one can, or add boiling water or boiling syrup, of any strength desired. Screw the tops down, or seal, and set away.

Canned Grapes—To Use.

They are good directly from the can or made into pies; or they may be used as plums or raisins, in cake and pudding. They are good in a roly-poly pudding, boiled or baked.

Peaches—To Can.

Pare and halve your peaches. Pack them as closely as possible in the can without any sugar. When the can is full, pour in sufficient pure cold water to fill all the interstices between the peaches, and reach the brim of the can. Let stand long enough for the water to soak into all the crevices—say six hours—then pour in water to replace what has sunk away. Seal up the can, and all is done. Canned in this way, peaches retain all their freshness and flavor.

There will not be enough water in them to render them insipid. If preferred, a cold syrup could be used instead of pure water, but the peaches taste most natural without any sweet.

Another.—Select some fine free-stone peaches; pare, cut in two and stone them; immerse in cold water, taking care not to break the fruit; see that the peaches are not over-ripe; place in the kettle and scatter sugar between the layers; the sugar should be in the proportion of a full tablespoon to a quart of fruit; to prevent burning, put a little water in the kettle; heat slowly to a boil, then boil for three or four minutes. Can and seal the fruit.

Plums—Canned.

Allow three-quarters of a pound of sugar to every pound of plums. Put in a porcelain-lined kettle; cook sufficient to fill one jar at a time; bring slowly to boiling-point; simmer until the plums are soft, without

being broken, skim and can. All large plums may be canned in the same manner, first pricking the skins to prevent cracking.

Another.—Wash and put whole in a syrup made in the proportion of a pint of water and a pound of sugar to every two pounds of fruit; boil for eight minutes; can and seal immediately. If pricked with a fork before putting in the syrup, they will be less liable to burst. Cherries are canned in the same way.

Tomatoes—Canning.

The most thorough and reliable mode of canning tomatoes is as follows: They are just sufficiently steamed, not cooked, to scald or loosen the skin, and are then poured upon tables and the skin removed, care being taken to preserve the tomato in as solid a state as possible. After being peeled, they are placed in large pans, with false bottoms perforated with holes, so as to strain off the liquid that emanates from them. From these pans they are carefully placed by hand in the cans, which are filled as solidly as possible—in other words, all are put in that the cans will hold. They are then put through the usual process and hermetically sealed. The cans, when opened for use, present the tomato not only like the natural vegetable in taste and color, but also in appearance; and moreover, when thus sealed, they are warranted to keep in any climate, and when opened, will taste as naturally as when just plucked from the vine.

Apple Preserves.

Core and pare fine ripe Pippins and cut them into quarters. Weigh, and to each pound allow one pound of granulated sugar and a half a pint of boiling water, the grated rind of one and the juice of two lemons. Boil

the sugar and water until clear (about three minutes), skimming when necessary; add the lemon juice and rind, then the apples, and simmer gently until they are clear and tender, but not broken; then stand aside to cool. When cold put them into jars cover closely, and stand them in a cool, dark place for one week. At the end of that time turn them carefully into the kettle, bring them to the boiling-point, and simmer for five minutes; then return them to the jars, and cover closely with tissue paper brushed over with the white of an egg, and put in a dark, cool place to keep.

Crab Apples—Preserving.

The fruit is prepared by first cutting out all decayed portions; then wash clean, and place in a kettle with sufficient water to cover the fruit entirely. Have a tight-fitting lid to the kettle and boil, over a moderate fire, until the fruit is soft enough to pierce with a straw; drain off the water, and strain through a coarse cloth or jelly bag, and set it aside for jelly. The apples, in boiling, will have burst their skins, which are easily removed; the cores are taken out by pushing them through from the blossom end, with a goose-quill or a stick of equal thickness, being careful to press the stem end against the fingers to prevent breaking the apple. The fruit is now ready to preserve whole or to make into marmalade; for either, the proportions are: 4 lbs. of fruit, 3 lbs. of sugar, and 1 pint of water. Put the sugar and water into the preserving kettle, set it over the fire until it boils, then drop in the fruit, (if it is to be done whole), boil until clear, and remove into a jar. If there is more syrup than will be needed, boil down to the desired quantity; pour it over the fruit while hot and cover with a cloth, cut of sufficient size to cover and tie down.

This cloth dip into a cement made of two parts of beeswax to one of resin, adding enough tallow or lard to keep it from cracking. While the whole is warm, draw the cloth tightly over the top of the jar and tie down. To make marmalade, the boiled fruit must be mashed to a pulp before being added to the syrup, and then boiled, and stirred until it becomes clear, which is usually in half an hour.

To Preserve Apricots Whole.

Weigh equal quantities of fine apricots and of loaf sugar; cut a slice at the stems, and push out the stones; put them on a flat dish, and scatter some sugar over them. Boil the remainder of the sugar to a syrup, put in the apricots, let them boil for three minutes, take off the pan, cover it closely, and let them stand for two hours, after which return it to the fire, let them come to boil for three minutes, take off the pan, cover it, and let it stand for two hours. Put it on the fire again, and let them boil slowly for fifteen minutes, blanch the kernels, and add them; carefully remove the scum, take it from the fire, and let it stand ten minutes before you can it.

Cherry Preserves.

Choose sour ones—the Early Richmond is good—seed all very carefully, allow an amount of sugar equal to the fruit; take half the sugar, sprinkle over the fruit, let it stand about an hour, pour into a preserving kettle, boil slowly ten minutes, skim out the cherries, add balance of the sugar, boil, skim, and pour over the cherries; the next day drain off the syrup, boil, skim if necessary, add the cherries, boil twenty minutes, and seal up in small jars.

Preserved Citron.

Remove the rind from two citrons, cut into small pieces. Sprinkle over two pounds of granulated sugar. Let

it stand for twenty-four hours. Add two and a half pounds more sugar, quarter-pound of ginger, juice and peel of six lemons, and boil for four hours, or until it jellies.

Currants—To Preserve.

Gather the currants upon a dry day; to every pound allow half a pint of red currant juice and a pound and a half of finely pounded loaf sugar. With scissors clip off the heads and stalks; put the juice, currants, and sugar in a preserving pan; stir it frequently till it boils; carefully remove the fruit from the sides of the pan, and take off the scum as it rises; let it boil for ten or fifteen minutes. This preserve is excellent, eaten with cream.

Grapes (Green)—To Preserve.

The grapes must not be too old; the best time is just before the seed begins to harden. They are, after being picked and freed from stems, put into bottles (strong wine or champagne bottles are best) so as nearly to fill the latter. These are then filled with fresh and clean water. After this they are all placed in a large kettle, partially filled with cold water, and the temperature raised nearly to the boiling-point. The water in the bottles expands by the heat, and part is driven out. As soon as sufficiently heated, they are taken off, enough water poured out of each bottle to merely allow a well-fitting cork to be pressed in tightly. After being corked they are sealed up with sealing wax or common beeswax. As the bottles cool down a partial vacuum is left in the neck of each. Grapes thus preserved have kept for years in this climate, where canned fruit often spoils during the hot summers. They can at any time be opened and prepared like fresh grapes, and no difference will be found in the taste. It is better to use the water, also, in which they were kept, as it contains a large per-

centage of tartaric acid, which gives them the pleasant sour taste.

Preserved Peaches.

Peaches for preserving may be ripe but not soft; cut them in halves, take out the stones, and pare neatly. Take as many pounds of white sugar as of fruit; put to each pound of sugar a teacup of water; stir it until it is dissolved; set it over a moderate fire. When it is boiling hot put in the peaches; let them boil gently until of a pure, clear, uniform color; turn those on the bottom to the top carefully with a skimmer several times; do not hurry them. When they are done take up each half with a spoon and spread the halves on flat dishes to become cold; when all are done let the syrup boil until it is quite thick, pour it into a large pitcher, and let set to cool and settle; when the peaches are cold place them carefully into jars and pour the syrup over them, leaving any sediment which has settled at the bottom, or strain the syrup. Some of the kernels from the peach-stones may be put in with the peaches while boiling. Let them remain open over night; then cover.

Pineapples—To Preserve.

Cut the pineapple into slices about half an inch thick, put them into a jar, make a syrup, using half a pound of sugar to a pint of water, and let it simmer quietly till dissolved. Let it stand a day, and then pour it over the fruit; after a short time take it away, and let it simmer again, having added a little more sugar. Repeat this process three or four times, and the last time pour the syrup boiling over the fruit.

Plum Preserves.

Allow equal weight sugar and plums; add sufficient water to the sugar to make a thick syrup, boil, skim, and pour over the plums (previously washed, pricked, and placed in a stone jar), and

cover with a plate. The next day drain off the syrup, boil, skim, and pour in over plums; repeat this for three or four days; then place plums and syrup in preserving kettle, and boil very slowly for half an hour. Put up in stone jars, cover with paper, like jellies, or seal in cans.

Plums—To Preserve.

Cut your plums in half (they must not be quite ripe), and take out the stones. Weigh the plums, and allow a pound of loaf sugar to a pound of fruit. Crack the stones, take out the kernels and break them in pieces. Boil the plums and kernels very slowly for about fifteen minutes, in as little water as possible. Then spread them on a large dish to cool, and strain the liquor. Next day make your syrup. Melt the sugar in as little water as will sufficiently dissolve it (about a gill of water to a pound of sugar), and boil it a few minutes, skimming it till quite clear. Then put in your plums with the liquor, and boil them fifteen minutes. Put them in jars, pour the juice over them warm, and tie them up when cold, with brandy paper. Plums for common use are very good done in syrup. Put your plums into an earthen vessel that holds a gallon, having first slit each plum with a knife. To three quarts of plums put a pint of syrup. Cover them, and set them on the back of the range. Let them stew for twelve hours or more, occasionally stirring them. The next day put them up in jars. Done in this manner, they will keep till the next spring. Syrups may be improved in clearness by adding to the dissolved sugar and water some white of egg very well beaten, allowing the white of one egg to two pounds of sugar. Boil it very hard (adding the eggshell), and skim it well that it may be quite clear before you put in your fruit.

Quinces—To Preserve.

Wipe the fruit and remove all defects, then pare, quarter and core. Boil the parings and cores in water an hour or more and strain through a colander. In this liquid, which is very glutinous, boil the fruit until easily pierced with a fork. The fruit should be weighed before cooking. To each pound of fruit add half a pound of white coffee sugar and boil only a few moments, when they are ready for canning. If more juice is desired add water to the last cooking. A mold may form on the top, but it does not hurt them in the least, and is easily removed when they are used. This process requires time.

Another.—Pare and core the quinces and cut them in halves or quarters, according to size. To four pounds of quinces allow four pounds of best white crushed sugar, and a pint of cold water. Put the quinces into a preserving kettle and pour the water over them, and spread half the sugar over the top; let them heat slowly, and boil until you can run a fork easily through them; keep closely covered, and do not stir them; when soft take each piece out separately and place on a platter to cool. Then strain the syrup, put in the rest of the sugar and boil it, closely covered without stirring, half an hour or more, when it is a red color and almost a jelly; do not remove the cover until it is taken from the fire. Let the fruit and syrup remain separate until the next day, then put a layer of each alternately into your jars and seal them. In this way they will not grow hard and tough.

To Preserve Raspberries.

Gather the raspberries when they are dry, allow to each pound of fruit a pound of sugar, add the raspberries, and boil them for twenty minutes.

Rhubarb Preserve.

Peel and cut into pieces about two inches in length, six pounds of rhubarb. Put it into a stone jar, with eight pounds of preserving sugar, the rind of a lemon cut thin, and shredded into little bits, a quarter of a pound of ginger, and a few cloves; set the jar in a pan of boiling water, or stand it in the oven. When the rhubarb is quite tender, strain off the juice; put the juice into a preserving pan, and boil quickly for half an hour; pour it over the rhubarb, and put the whole into jars; if well made it will be clear, and stiff enough to turn out, and covered in jars, it will keep as well as any other preserves.

To Preserve Strawberries.

Have the fruit gathered very dry and ripe. To six pounds of fruit allow two pints of the juice of red currants, and to each pound of strawberries allow one pound of loaf sugar, and the same to each pint of juice. Put in the fruit with the juice, boil it for twenty minutes, take out a little on a saucer, and let it stand till cold. If it jellies it is done; if it runs, boil it a few minutes longer.

Tomatoes—Preserved.

Take of good ripe tomatoes, such a quantity as you wish to preserve; pare them, cut them into quarters, (if large ones,) place them in a stewpan with a little water, so they will not burn. Being a very juicy fruit, they require to be cooked until the juice is nearly all out; then add white sugar—one pound to each pound of fruit; cook slowly one-half hour.

Making Jelly.

Use a coarse linen bunting bag or cloth to strain the fruit. To make very clear do not press very much as the more the fruit is pressed the cloudier the jelly will be. Use only

three-quarters as much sugar for crab-apple and quince as you do for other fruit. Use currants before they are dead ripe. For most fruits the rule is a pound of sugar to a pint of juice. Twenty minutes boiling for currant jelly, as it has no water in it. Cover the jelly in the glasses with writing paper wet with brandy, and seal with newspaper or thin wrapping paper wet with white of egg, not beaten to a froth.

Apple Jelly.

Wipe the fruit, cut it into pieces without paring or removing the seeds. Put into kettle and barely cover with cold water; cover the kettle, and boil slowly until the apples are very tender; then drain them through a flannel jelly bag—do not squeeze or the jelly will be cloudy. To every pound of this juice allow one pound of granulated sugar. Put the juice into the kettle and bring it quickly to the boiling point; add the sugar and stir until dissolved, and then boil rapidly and continuously until it jellies, skimming as a scum rises to the surface. Twenty minutes is usually sufficient for the boiling, though not always. After fifteen minutes' boiling begin the testing by taking out one teaspoonful of the boiling jelly, pouring it into the bottom of a saucepan, and standing it in a cool place for a moment. Scrape it up with the side of a spoon, and, if jellied, the surface will be partly solid; if not, boil a few minutes longer and try again; as soon as it jellies roll the tumblers in boiling water and fill with the boiling liquid. Stand aside until cold and firm (about twenty-four hours). If the glasses have lids put them on; if not, cover with two thicknesses of tissue paper and paste the edges down over the tumbler. Then moisten the papers with a sponge dipped in cold water,

so that when 't dries it will shrink and be tight. Keep in a cool, dark place.

Plum-and-Apple Jelly.

This may be made by preparing the juice of one part plums to two parts apples, as above, and finish without flavoring. Marmalade is made the same way as above. Some add a little ginger root to it. One bushel of apples and one peck of plums make forty pints of jelly and sixteen quart glass cans of mixed marmalade. In making either kind of jelly the fruit may be squeezed and the juice strained twice through swiss or crinoline and made into jelly. The pulp is not then fit for marmalade.

Apricot Jelly.

Pare the fruit thin and stone it; weigh an equal quantity of sugar in fine powder, and scatter over it. Stand one day, then boil very gently till they are clear, move them into a bowl, and pour the liquor over. The next day pour the liquor to a quart of codling liquor; let it boil quickly till it will jelly; put the fruit into it, and boil; skim well, and put into small jars.

Jelly—Arrowroot.

Put half a pint of water, a glass of sherry, a little grated nutmeg and fine sugar into a saucepan, and when boiling mix gradually with them a dessert-spoonful of arrowroot already rubbed smooth in a tablespoonful of cold water. Boil all together for three minutes, and pour into glasses or small cups. This jelly may be flavored with the juice of any fruit that is in season, or with orange or lemon juice.

Barberry and Apple Jelly.

Four quarts barberries and six sour apples cooked together until thoroughly done with a small quantity of water. Strain through jelly bag, and proceed as for other jelly. Very nice with game of all kinds.

Cherry Jelly.

Put the cherries into a stone jar, stand it in a kettle of cold water, cover the top of the jar, and heat slowly until the cherries are soft. Now put a small quantity at a time into your jelly-bag, and squeeze out all the juice. Measure the juice, and to each pint allow one pound of granulated sugar. Turn the juice into a porcelain-lined kettle and stand over a brisk fire. Put the sugar into earthen dishes and stand in the oven to heat. Boil the juice rapidly and continuously for twenty minutes, then turn in the sugar hastily, stirring all the while until the sugar is dissolved. Dip your tumblers quickly into hot water, watch the liquid carefully, and as soon as it comes again to a boil, take it from the fire and fill the tumblers. If the fruit is overripe your jelly will never be firm, no matter how long you boil it. Follow these directions carefully and you will never fail.

Coffee Jelly.

One-half box gelatine soaked in one pint of strong, cold coffee two hours. Then add one-half pint of boiling water. Stir and add one cup of sugar; cool on ice and serve with cream.

Currant (Black) Jelly.

To each pound of picked fruit, allow one gill of water; set them on the fire in the preserving pan to scald, but do not let them boil; bruise them with a silver fork, or wooden beater—take them off and squeeze them through a hair sieve; and to every pint of juice allow a pound of loaf or raw sugar; boil it ten minutes.

Currant (Red) Jelly.

With three parts of fine, ripe, red currants, mix one of white currants; put them into a clean preserving pan and stir them gently over a clear fire until the juice flows from them freely; then turn them into a fine hair sieve, and let them drain well, but without

pressure. Pass the juice through a folded muslin or a jelly-bag; weigh it, and then boil it fast for a quarter of an hour; add for each pound, eight ounces of sugar, coarsely powdered; stir this into it, off the fire, until it is dissolved; give the jelly eight minutes more of quick boiling and pour it out. It will be firm and of excellent color and flavor. Be sure to clear off the scum as it rises, both before and after the sugar is put in, or the preserve will not be clear. Juice of red currants three pounds; juice of white currants one pound; fifteen minutes. Sugar two pounds; eight minutes. An excellent jelly may be made with equal parts of the juice of red and of white currants and of raspberries, with the same proportion of sugar and degree of boiling as mentioned in the foregoing recipe.

Red Currant Jelly, No. 2.

Take the quantity of fruit required, squeeze it, and put the juice on in a brass pan. When it comes to the boil, take it off and run through a jelly-bag. To a pint of juice allow one pound of loaf sugar, add the juice, and boil for three minutes; then try a little in a saucer to ascertain whether it is jellied. Be careful not to boil it too much, as it will then be more like syrup than jelly. White currant jelly may be made in the same way.

Red Currant Jelly, No. 3.

To six pints of red currants allow two of white, and two of raspberries, squeeze all together; then measure the juice, and allow one pound of loaf sugar to the pint. Put sugar and juice on in a brass pan, let it come to the boil, and boil for about three minutes, removing the scum as it rises to the surface.

White Currant Jelly.

Gather the fruit on a dry day, pick it from the stalks, and bruise it with a saucer in a basin, along with some white

raspberries, and to each pint of juice, allow a pound of sugar, clarify and boil to a syrup. Add the juice, and boil it quickly for six minutes, or you may squeeze and boil as in the foregoing recipe.

Grape Jelly.

For this use ripe Concord, Isabella, or Clinton grapes. They should be freshly picked and with the bloom on. Put the grapes into a stone jar; stand it in a kettle of cold water; cover the top of the jar and heat slowly until the berries are soft. Now put a small quantity at a time into your jelly-bag, and squeeze out all the juice. Measure the juice, and to each pint allow one pound of granulated sugar. Turn the juice into a porcelain-lined kettle, and stand over a brisk fire. Put the sugar into earthen dishes and stand in the oven to heat. Boil the juice rapidly and continuously for twenty minutes, then turn in the sugar hastily, stirring all the while till the sugar is dissolved. Dip your tumblers quickly into hot water, watch the liquid carefully, and, as soon as it comes again to a boil, take it from the fire and fill the tumblers. If the fruit is over ripe your jelly will never be firm.

Green Grape Jelly.

Fox grapes are best for this. Stem the grapes, put them into a porcelain-lined kettle, barely covered with cold water, cover the kettle, and boil slowly until the fruit is very tender; then drain them through a flannel jelly-bag; do not squeeze. To every pint of this juice allow one pound of granulated sugar. Put the juice into a porcelain-lined kettle, and bring it quickly to a boil; add the sugar, stir until the sugar is dissolved, then boil rapidly and continuously until it jellies, skimming off the scum as it comes to the surface; twenty minutes is usually sufficient, but sometimes I have boiled it thirty-

five minutes before it would jell properly. It is wise to begin testing after fifteen minutes' boiling. As soon as it jellies, roll the tumblers quickly in boiling water, then fill them with the boiling liquid. Stand aside until cold and firm (about twenty-four hours). Then, if you have jelly tumblers, put on the lids; if not cover with two thicknesses of tissue paper, and paste the edges of the paper down over the glass of the tumbler. Then moisten the top of the paper with a sponge dipped in cold water. This moistening stretches the paper, so that when it dries again it shrinks and forms a covering as tight and smooth as bladder skin. I do not recommend jelly being covered with brandied paper as in my hands it has never been satisfactory. The jelly, in cooling, forms its own air-proof covering, and if the top of the tumbler be well secured, it is all that is necessary. Keep in a cool, dark place.

Jelly—Hartshorn.

Hartshorn, one pound; water, one gallon; peel of two lemons. Boil over a gentle fire until sufficiently thick, strain, and add loaf sugar, one-half pound; whites of ten eggs (beaten to a froth); juice of six lemons. Whisk together well.

Lemon Jelly.

Two cupfuls of sugar. One of lemon juice. One quart of boiling water. One cupful of cold water. One box of gelatine. Soak the gelatine for two hours in the cold water. Pour the boiling water on it, and when dissolved, add the sugar and lemon juice. Strain it and pour into molds to harden.

Plum Jelly.

For this use common blue plums. Wash in cold water, put in a porcelain-lined kettle, and to every half peck allow a pint of water; cover and heat until soft and tender; then turn into a flannel jelly-bag, and drip slowly until

the pulp is dry. Do not squeeze or handle the bag, or the jelly will be cloudy. To every pint of juice allow one pound of granulated sugar. Then proceed as with Green Grape Jelly.

Orange Jelly.

Take the quantity of oranges required, half of sweet and the other half of bitter; cut them up, and squeeze through a fine sieve. To a pint of juice allow one pound and a quarter of finest loaf sugar, clarify it, pour in the juice, and let it boil about ten minutes; then try a little in a saucer, in order to ascertain whether it is jellied.

Apple Marmalade.

Peel and core two pounds sub-acid apples, and put them in an enameled saucepan with one pint of sweet cider, or half a pint of pure wine, and one pound of crushed sugar, and cook them by a gentle heat three hours, or longer, until the fruit is very soft, and then squeeze it first through a colander and then through a sieve. If not sufficiently sweet, add powdered sugar to suit your taste, and put away in jars made air-tight.

Marmalade—Apricot.

Take off the peel of some large, ripe apricots, cut them in two and remove the stones; weigh the fruit and lay it on dishes; to every pound of apricots put one pound of finely-powdered loaf sugar, sprinkle it over fruit, and let it lie for one night; next day put the fruit and sugar into a preserving pan with a teaspoonful of ratafia to every pound of sugar; let the whole boil very gently, and as each piece of apricot appears clear, take it out and lay it in a jar; skim off any scum that may arise on the syrup, and when all the fruit is done pour the syrup over it in the jars.

Cherry Marmalade.

Take out the stones and stalks from some fine cherries, and pulp them through a coarse sieve; to every three

pounds of pulp add half a pint of currant juice, and three-quarters of a pound of sugar to each pound of fruit; mix together, and boil until it will jelly, Put it into jars or glasses.

Marmalade—Red Currant.

Squeeze some ripe, red currants through a coarse muslin; to every pint of juice put a pound of loaf sugar; boil it very well; when nearly boiled to a jelly, have some bunches of large white currants nicely picked, throw them in and boil five minutes; it should turn out stiff and transparent.

Marmalade—Gooseberry.

Take the gooseberries when fully grown, but not ripe, boil them in water five minutes, then drain them through a colander, bruise the fruit, add an equal quantity of loaf sugar, and to every three pounds of sugar put the rind of a lemon grated and half the juice; it should be boiled until stiff.

Grape Marmalade.

Made like grape jam, only use pound for pound of sugar, and boil until stiff.

Grated Marmalade.

Take the quantity of bitter oranges required, wipe them with a cloth, grate all the rinds off, and put it on the fire in a brass pan with a little boiling water and let it boil for twenty minutes. To each pound of oranges take one pound of loaf sugar, put it in a large basin, break and squeeze all the oranges through a sieve into it; then put all the pulp into a brass pan, just cover it with water, put it on the fire, and let it boil for ten minutes, then run through the sieve into the sugar. Put it all on the fire in a brass pan; add the gratings after being drained through a piece of muslin or hair sieve, and let it boil till it jellies. Lemon marmalade may be made in the same way.

Mashed Marmalade.

Take the weight of oranges required, and wipe them with a clean, rough

towel, cut them in four over a sieve, to preserve the juice, take out the pulp and put the skins on with cold water. Cover them closely, and boil until a pin-head will go through them easily, then take them out, scrape off the white, and mash them in a mortar. Take as many pounds of sugar as you have of fruit, boil and clarify it; put in the mashed skins, press through all the juice with a wooden spoon, add the juice of two lemons, put all into a pan, boil, and finish as in the foregoing recipe.

Marmalade—Mixed.

Pare, core and quarter one peck of pears, the same quantity of orange quinces, simmer in sufficient water to keep them from burning, until tender, flavoring them with one quarter of a pound of sliced green ginger, the rind of one orange and one lemon, one ounce of blanched and shredded sweet almonds, a dozen bitter almonds or peach pits. Pare, core and quarter two pecks of pippins, and add them when the quinces are tender. When the apples are tender add for each pound of the pulp one-half pound of good brown sugar, simmer a few minutes all together and serve hot.

Orange Marmalade.

Slice twelve oranges with the rind very thin. Add three pints of water to every pound of oranges. Let this simmer for twenty-four hours, then boil until the chips are tender. Weigh, and add a pound of lump sugar to every pound. Boil all together until the syrup will jelly. When done, add the juice of three lemons.

Orange Marmalade— (Economical).

Take twelve oranges and two lemons and rub them with a rough towel, then divide them lengthwise into quarters, remove the seeds and cut them into very thin slices. Weigh the fruit, and

put it into a basin with cold water, allowing three pints to each pound, and let it stand twenty-four hours, after which put it on in a clean brass pan, let it boil till tender, and set it aside again in a basin for twenty-four hours. Weigh it again, then put it on allowing one pound and a half of loaf sugar to the pound, and let it boil briskly for a few minutes, or till it jellies. Lemon marmalade may be made in the same way.

Orange Marmalade.

Choose the largest oranges, as they usually contain the greatest quantity of juice, and choose them with clear skins, as the skins form the largest part of the marmalade. Weigh the oranges, and weigh also an equal quantity of loaf sugar. Skin the oranges, dividing the skins into quarters, and put them into a preserving pan; cover them well with water, and set them on the fire to boil; in the meantime prepare your oranges; divide them into gores, then scrape with a teaspoon all the pulp from the white skin; or, instead of skinning the oranges, cut a hole in the orange and scoop out the pulp; remove carefully all the pips, of which there are innumerable small ones in the Seville orange, which will escape observation unless they are minutely examined. Have a large basin near you with some cold water in it to throw the pips and skins into—a pint is sufficient for a dozen oranges. A great deal of glutinous matter adheres to them, which, when strained through a sieve, should be boiled with the other parts. When the skins have boiled till they are sufficiently tender to admit of a fork being stuck into them, strain them; some of which may be boiled with the other parts; scrape clean all the pith, or inside, from them; lay them in folds, and cut them into thin slices of about an inch long.

Clarify your sugar; then throw your skins and pulp into it, stir it well, and let it boil about half an hour. If the sugar is broken into small pieces, and boiled with the fruit, it will answer the purpose of clarifying, but it must be well skimmed when it boils.

Peach Marmalade.

Peel ripe peaches, stone them, and cut them small. Weigh three-quarters of a pound of sugar for each pound of cut fruit, and a teacup of water for each pound of sugar; set it to the fire; when it boils skim it clear. Then put in the peaches; let them boil quite fast; mash them fine, and let them boil until the whole is a jellied mass and thick. Then put it into a small jar or tumblers. When cold, secure it as directed for jellies. Half a pound of sugar for a pound of fruit will make nice marmalade.

Another.—The fruit for this purpose should be finely flavored and quite ripe, though perfectly sound. Pare, stone, weigh, and boil it quickly for three-quarters of an hour, and do not fail to stir it often during the time; take it from the fire and mix with it ten ounces of well-refined sugar, rolled or beaten to powder, for each pound of the peaches; clear it perfectly from seum, and boil it briskly for five minutes; throw in the juice of one or two good lemons; continue the boiling for three minutes only, and pour out the marmalade. Two minutes after the sugar is stirred to the fruit add the blanched kernels of part of the peaches. This jam, like most others, is improved by pressing the fruit through a sieve after it has been partially boiled. Nothing can be finer than its flavor, which would be injured by adding the sugar first, and a large proportion renders it cloyingly sweet. Nectarines and

peaches mixed make an admirable preserve.

Pear Marmalade.

Chop the pears quite fine (they must not be too ripe). For six pounds of pears add six pounds of sugar, the juice and rind of three lemons. Cut the rind into small pieces. Stir well and boil for an hour, or until the pears have a transparent look. Stir often.

Plum Marmalade.

When the plums are thoroughly ripe, take off the skins, weigh, and boil them quickly without sugar for fifty minutes, keeping them well stirred; then to every four pounds add three of good sugar, boil the preserve from five to eight minutes longer, and clear off the scum perfectly before it is poured into the jars. When the flesh of the fruit will not separate easily from the stones, weigh, and throw the plums whole into the preserving pan, boil them to a pulp, pass them through a sieve, and deduct the weight of the stones from them when appropriating the sugar to the jam. Any other plum may be substituted for Green Gages, in this receipt. Green Gages, stoned and skinned, six pounds, fifty minutes; sugar, four and one-half pounds, five to eight minutes.

Quince Marmalade.

Half fill a preserving pan with water, slice your quinces into it, and stew, stirring occasionally till they are a pulp; strain it through a hair sieve; to every pint of pulp add three quarters of a pound of loaf sugar pounded; boil together till it jellies; put it into jars while hot. If well made it will keep many years in a dry place.

Another—Take quinces that are quite ripe, pare and cut them into quarters, take out the cores, put them into a stew-pan with nearly enough water to

cover them, keep them closely covered, and let them stew gently till they are quite soft and red, then mash and rub them through a hair sieve. Put them in a pan over a gentle fire, with as much thick clarified sugar as the weight of the quinces; boil them an hour and stir the whole time with a wooden spoon to prevent its sticking; put it into pots, and when cold tie them down.

Tomato Marmalade.

Take fine and ripe tomatoes, cut them in halves, and squeeze out the juice. Put them in a preserving pan, with a few peach leaves, a clove of garlic, some slices of onion or shallot and a bundle of parsley. Stew them until they are sufficiently done, pulp them through a sieve, and boil them down like other marmalade, adding salt. Put them into small jars, pepper the tops and pour clarified butter over. Eat it with fish, etc., or stir the contents of a small jar into the gravy of stews or fricassees.

Marmalade—Transparent.

Cut very pale oranges into quarters; take out the pulp, put it into a basin and pick out the skins and seeds. Put the peels into a little salt and water, and let them stand all night, then boil them in water until they are tender; cut them in very thin slices, and put them into the pulp. To every pound of marmalade put one pound and a half of double refined beaten sugar; boil them together gently for twenty minutes; if they are not transparent, boil them a few minutes longer. Stir it gently all the time, and take care not to break the slices. When it is cold, put it into jelly and sweetmeat glasses; tie down tight.

Apple Jam.

The apples which should be ripe and of the best eating sort, being pared and quartered, are put into a pan with just

water to cover them, and boiled until they can be reduced to a mash. Then for each pound of the pared apples, a pound of sifted sugar is added, being sprinkled over the boiling mixture. Boil and stir it well until reduced to a jam. Then put it into jars.

The above is the most simple way of making it; but to have it of the best possible clearness, make a thick syrup with three pounds of sugar to each pint of water, and clarify it with an egg. Then add one pint of this syrup for every three pounds of apples, and boil the jam to a proper thickness.

Crab-Apple Jam.

Pare the crab-apples when quite ripe. Put them into a stone jar, cover it well and put it in a pan of boiling water for an hour and a half. Then prepare the syrup with two pounds of sugar in half a pint of water, for every pound of the apples. Clarify the syrup. Then put the apples into it, and boil the whole to a jam.

Apricot Jam.

Weigh equal quantities of pounded loaf sugar and of apricots; slit them up, take out the stones, and lay them on a flat dish. When they are all done, scatter the half of the sugar over them. The following day clarify the remainder of the syrup, then add the apricots and boil it fifteen minutes, removing the scum as it rises. Have the kernels blanched, add as many of them to the jam as you wish, and boil five minutes longer.

Another.—Let the fruit be just in maturity, but not overripe. Remove the skins, then cut the apricots in halves. Crack the stones, take out the kernels, bleach them in boiling water, and then pound them in a mortar. Boil the broken stones, skins and parings, in double the quantity of water required for the jam. Reduce it in the boiling to one half of its original quantity. Then strain it through a

jelly-bag. To each pound of prepared apricots put a quarter of a pint of this juice, a pound of sifted loaf sugar, and the pounded kernels. Put it on the fire, which should be brisk, and stir the whole with a wooden spoon until it is of a nice consistence, but without being very stiff, or it would have a bad flavor. Put it immediately into jars and let these stand uncovered during twenty-four hours. Then scatter a little sifted sugar over the upper surface of the jam in each jar, and tie egged paper over each jar.

Jam—Apricot or Plum.

After taking away the stones from the apricots, and cutting out any blemishes they may have, put them over a slow fire, in a clean saucepan, with half a pint of water; when scalded, rub them through a hair sieve; to every pound of pulp put one pound of sifted loaf sugar, put it into a preserving pan over a brisk fire, and when it boils skim it well, and throw in the kernels of the apricots and half an ounce of bitter almonds, blanched; boil it a quarter of an hour, fast, and stirring it all the time; remove it from the fire, fill it into jars, and cover them. Green gages may be done in the same way.

Blackberry Jam.

Gather the fruit in dry weather; allow half a pound of good, brown sugar to every pound of fruit; boil the whole together gently for an hour, or till the blackberries are soft, stirring and mashing them well. Preserve it like any other jam, and it will be found very useful in families, particularly for children—regulating their bowels, and enabling you to dispense with cathartics. It may be spread on bread, or on puddings, instead of butter; and even when the blackberries are bought, it is cheaper than butter. In the country, every family should preserve at least half a peck of blackberries.

Cherry Jam.

Stone four pounds of cherries and put them in a preserving pan with two pounds of fine white sugar and a pint of red currant juice; their own juice will do. Boil the whole together rather fast, until it stiffens, and then put it into pots or jars for use.

Another.—Weigh fruit before it is stoned; to each pound of fruit allow three-quarters of a pound of sugar; stone the cherries and set them with the sugar and a few spoonfuls of water in the preserving pan, to simmer gently for half an hour. Then boil quickly, skimming all the time for another half-hour. It is recommended to crack the cherry stones and put the kernels into the jam, but as this is both tedious and troublesome, a few drops of ratafia or almond essence will be found quite as good.

Black Currant Jam.

Gather the black currants when dry, allow to each pound of fruit a pound of loaf sugar and to four pounds allow a pint of raspberry juice, adding a pound of sugar for each pint. Put all on in a brass pan, stir slowly till it boils, and boil for five minutes.

Jam—Currant, Red, White or Black.

Strip the currants from the stalks, and put them into the preserving pan, with three-quarters of a pound of sugar to each pound of fruit; add the sugar after the fruit has boiled a few minutes; boil together, mashing the fruit with a wooden spoon, and taking off the scum; boil all gently for half an hour, then fill the jars.

Black Currants, for Tarts.

Gather the currants on a dry day, and to every pound of fruit allow half a pint of raspberry and red currant juice. Allow a pound and a half of

sugar to each pound of currants and half pint of juice. Put them all into a brass pan together, and shake it frequently till it boils. Skim it clean, and let it boil constantly for eight minutes; then take it from the fire, put a piece of muslin over the jars, and with a divider take some of the thinnest of the jelly out of the pan, run it through the muslin, fill the jars, and go on filling until the jam comes a proper thickness. This makes beautiful jelly, and the jam answers well for rolls, tarts, etc.

Elderberries.

Ten pounds of berries, one pint of vinegar. Cook thoroughly. Add four pounds of sugar, two grated nutmegs. Stir constantly. Cook like jam. This is nice for pies. It can be put in sealed jars and kept.

Gooseberry Jam.

Take as many red gooseberries as you require, allow an equal weight of sugar for fruit. To six pounds of gooseberries allow two pints of the juice of raspberries, and one pound of sugar for each pint. Put them all in the pan together, stir them occasionally, skim well when they are boiling, and let it boil from ten to fifteen minutes. The Nutmeg or Warrender is the best gooseberry for jam.

Another.—Choose the red hairy gooseberry when quite ripe; cut off the tops and tails, weigh them and put them into a preserving pan with a quarter of a pint of red currant juice to every three pounds of gooseberries; let them boil quickly together for nearly an hour, stirring carefully all the time. Then add the sugar in the proportion of three-quarters of a pound to each pound of fruit, and boil for forty minutes. Gooseberry jam takes a long time to boil; if not well done it will neither look nor keep well.

Grape Jam.

Pulp the grapes; put the skins in one basin and the pulps in another. Pour the pulps into a porcelain-lined kettle, and bring to the boiling-point. press them through a colander, add the skins, and measure. To every pint allow a half-pound of sugar. Put the sugar and liquid back into the kettle, and boil rapidly twenty minutes, stirring occasionally to prevent scorching. Pour into tumblers or jars and seal the same as fruit jelly. Or, after boiling the twenty minutes, the whole may be pressed through a sieve to make it fine.

Another.—Stem and wash ripe grapes. Pulp them, putting skins in a vessel by themselves. Cook the pulp in a preserving kettle and press through a sieve or colander to remove the seeds. Now add the skins, weigh all, and add three-fourths the weight in sugar. Cook all together slowly, stirring well for an hour. This is about the best way to put up grapes for winter use.

Peach Jam.

This confection should be made of the clingstone peach in preference, it being more juicy and of a higher flavor than freestones. Treat the peaches exactly in the manner directed for apricots, using the same quantity of sugar.

Plum Jam.

Stew plums in a little water and press through a colander or coarse sieve, adding a little water to get all the pulp through; add three-fourths pound sugar to each pound of pulped plums; boil three-quarters of an hour, stirring constantly; pour into jars or bowls, and cover with paper, pressed down close, to fit each jar or bowl, and then larger papers, brushed on the inside with the white of eggs, with the

edges turned down over the outside of the glass.

Raspberry Jam.

To each pound of fruit allow one pound of ground loaf sugar, pick the raspberries carefully, put them in a preserving pan along with the sugar, put the pan on a clear brisk fire, and with a wooden spoon stir carefully from the bottom, as it is very apt to burn. When it comes to the boil, let it boil quickly from five to eight minutes, stirring all the time; draw the pan to the back of the stove, skim it carefully, and put it in jars.

Raspberry Jam and Jelly.

Have equal weights of raspberries and red currants, pick the currants from the stalks, allow a pound of sugar to each pound of fruit, put all in the pan together, and stir with a wooden spoon until it boils. Skim it carefully when boiling; boil it for ten minutes; when done, run a few pots of the jelly through a bit of muslin, and return the berries that are in the muslin to the pan, and put into jars.

Strawberry Jam.

Put an equal weight of good, ripe, scarlet strawberries and broken loaf sugar into a preserving pan; let them boil very slowly till the sugar is all dissolved. The fruit should be kept as much unbroken as possible, therefore stir very carefully; remove the scum as it rises; the addition of half a pint of white currant juice to every four pounds of fruit is a great improvement, strawberry jam being rather a luscious preserve. Boil from forty minutes to an hour, until the fruit looks clear.

Another.—To each pound of fruit allow one pound of ground sugar. Pick carefully from the strawberries any leaves or stalks that may be among them, put them in a preserving pan with the sugar, put it on a clear,

brisk fire, and with a wooden spoon stir very carefully from the bottom, as it has a strong tendency to burn. When it comes to the boil, let it boil quickly from eight to ten minutes; then draw the pan to one side, skim carefully, and put into jars.

Apple Butter—Pennsylvania Method.

Boil new cider down to one-half. Pare, cut and core equal quantities of sweet and sour apples. Put the sweet apples in a large kettle to soften a little first, as they are hardest. Add enough boiled cider to cook them. After boiling half an hour, stirring often, put in the sour apples, and add more boiled cider with molasses enough to sweeten moderately. Boil until tender, stirring to prevent burning. Pack in firkins or stone pots for winter use.

Apple Butter.

This should be made from new cider, fresh from the press and not yet fermented. Fill a porcelain-lined kettle with cider, and boil until reduced one-half. Then boil another kettleful in the same way, and so continue until you have sufficient quantity. To every four gallons of boiled cider allow a half bushel of nice, juicy apples, pared, cored and quartered. The cider should be boiled the day before you make the apple butter. Put the boiled cider in a very large kettle, and add as many apples as can be kept moist. Stir frequently, and when the apples are soft beat with a wooden stick until they are reduced to a pulp. Cook and stir continuously until the consistency is that of soft marmalade and the color is very dark brown. Have boiled cider at hand in case it becomes too thick, and apples if too thin. Twenty minutes before you take it from the fire, add ground cinnamon and nutmeg

to taste. It requires no sugar. When cold, put into stone jars and cover closely.

Peach Butter.

Use a twenty gallon kettle. Boil twenty gallons of apple cider down to ten gallons, skimming well while boiling. Dip out while hot into stone or wooden vessels; it must not cool in the kettle. Take five bushels of peaches as ripe as can be handled; wash, but do not pare them; cut away the sun-cooked or black side; boil to a slush, stirring from first to last, using the boiled cider to keep it thin. The cider must be added hot, and the mass kept constantly boiling, and continued for five hours after the last of the cooked peaches and boiled cider are added. Five bushels of peaches cooked should use the ten gallons of boiled cider. A few minutes before removing from the fire add eight pounds of granulated sugar, four tablespoonfuls of ground cinnamon, two tablespoonfuls each of essence of lemon and essence of cinnamon. We find ready sale for this at one dollar a gallon, and it will keep for a year. The above quantity will stir off from thirteen to sixteen gallons of peach butter.

Quick Peach Butter.

Pare and stone mellow yellow peaches. Weigh, and to every pound allow three-quarters of a pound of sugar. Heat the peaches slowly in a porcelain-lined kettle. Mash and stir the peaches until perfectly smooth, then press through a fine sieve, add the sugar, and boil for fifteen minutes, stirring constantly. Put into small jars, and tie up as usual.

Plum Butter.

Select mellow plums; pare and stone; weigh, and to every pound allow three-quarters of a pound of sugar. Put the plums in a porcelain-lined kettle;

heat slowly; mash and stir until perfectly smooth, then press through a fine sieve; add the sugar; boil for fifteen minutes, stirring constantly. Put into jars, and tie up.

Cherries—Spiced.

Seven pounds of cherries, four pounds of sugar, one pint of vinegar, half ounce of ginger root, one teaspoonful of ground cloves, two teaspoonfuls of allspice, two teaspoonfuls of cinnamon, half teaspoonful of ground mace. Do not remove the stones. Put the vinegar and sugar on to boil. Mix the spices and divide them into four parts. Put each into a small square of muslin, tie tightly and throw into the sugar and vinegar. When this mixture is hot, add the cherries; bring to boiling point, take from the fire and turn carefully into a stone jar. Stand in a cool place over night. Next day drain all the liquor from the cherries into a porcelain-lined kettle, stand over a moderate fire, and, when boiling hot, pour back into the jar over the cherries. Next day drain and heat again as before; this do for nine consecutive days; the last time boil the liquor down until there is just enough to cover the fruit. Add the fruit to it, bring to a boil, and put in jars or tumblers for keeping.

Spiced Grapes.

Five pounds of grapes, three of sugar, two teaspoons of cinnamon and allspice, half teaspoon of cloves; pulp grapes; boil skins until tender, cook pulps, and strain through a sieve, add it to the skins, put in sugar, spices and vinegar to taste; boil thoroughly, and cool.

Spiced Plums.

Make a syrup allowing one pound of sugar and one pint of vinegar to each seven pounds of plums; to this add one teaspoonful of allspice, one of cloves, two of cinnamon, one-half ounce of

ginger root; tie these spices in muslin and cook in the syrup. When it boils add the plums, bringing all to the boiling point; simmer slowly for fifteen minutes and stand in a cool place over night. Next, drain the syrup from the plums and put the plums into stone or glass jars; then boil the syrup until quite thick and pour it over the fruit.

Another recommends pouring the boiling, spiced syrup over the plums in a stone jar, drawing it off and bringing it to a boil every other day, and pouring over the plums again until it has been heated five times, after which the fruit and syrup are placed in a kettle and boiled slowly for five minutes, and sealed hot in glass jars. This is said to preserve the plums whole.

By simply covering the fresh plums with cold well water, they may be kept for three weeks or longer, and the water removes all harshness from the skin and pit. They may be kept in good condition for use until winter or the following spring, by placing in a barrel or jar and pouring cooling water over them.

Another.—Plums must be pricked before cooking. Seven pounds of fruit, four pounds of sugar, one pint of vinegar, one-half ounce of ginger root, one teaspoonful of ground cloves, two teaspoonfuls of allspice, two teaspoonfuls of cinnamon, one-half teaspoonful of ground mace. Put the vinegar and sugar on to boil; mix the spices and divide them into four parts; put each into a small square of muslin, tie tightly, and throw them into the sugar and vinegar. When this mixture is hot add the fruit; bring to the boiling point, take from the fire, and turn carefully into a stone jar. Stand in a cool place over night. Next day, drain all the liquor from the plums into a porcelain-lined kettle, stand it over a moderate fire, and, when boiling, pour it back into the jar over the plums or

cherries. Next day, drain and heat again, as before, and do this for nine consecutive days, the last time boiling the liquor down until there is just enough to cover the fruit. Add the fruit to it, bring the whole to a boil, and put in jars or tumblers for keeping.

Blackberry Syrup.

Take a sufficient quantity of ripe blackberries. Put them into a sieve placed over a large broad pan, and with a clean potato masher, or something of the sort, press out all the juice. Or, having bruised them first, put the blackberries into a linen bag, and squeeze out all the juice into a vessel placed beneath. Measure it, to every quart of the strained juice allow half a pound of powdered loaf sugar, a heaping teaspoonful of powdered cinnamon, the same of powdered cloves, and a powdered nutmeg. Mix the spices with the juice and sugar, and boil all together in a porcelain kettle, skimming it well. When cold, stir into the above quantity half a pint of fourth proof brandy. Then bottle it for use. This is a good family medicine, and beneficial in complaints incident to warm weather.

It should be administered at proper times (at proper intervals), from a teaspoonful to a wineglassful, according to the age of the patient.

Syrup—Aromatic Blackberry.

The aromatic blackberry syrup is made by taking aromatic syrup instead of clarified sugar. The former is made in the following way: Refined sugar, five pounds; water, two pints; bruised ginger, one ounce; cloves, one-half ounce; calamus root, one-half ounce; nutmegs, one ounce; boil for two hours the ginger, cloves, calamus, and nutmegs in the water, strain, and dissolve the sugar, and when nearly cold, add oil of bitter almonds, four drops; essence of cinnamon, fifteen drops; es-

sence of nutmegs, one tablespoonful; essence of lemon, twenty drops. Stir the whole well until the oils are perfectly dissolved.

Cherry Syrup.

Mash the cherries and stand aside in a warm place for four days; cover to keep out dust and insects; then turn into a jelly-bag and let drip slowly. If you wish it very clear, filter through filtering paper. Measure the juice, and to every pint allow two pounds of granulated sugar. Mix the juice and sugar together until only a small portion settles to the bottom; then pour it into a double boiler, place over the fire, and the heat of the water as it boils around will dissolve the sugar. When this has been thoroughly effected, take it from the fire and stand aside to cool. When cool, put into small bottles, fill them to the top, cork tightly, seal, and keep in a dark, cool, dry place. Be very careful that you use only porcelain or granite articles in the making of syrups, as the acids of fruits will act upon metal and change the bright red color to a purple. Use a wooden spoon in stirring. Strong heat or boiling also destroys the color and flavor of syrups.

Black Currant Syrup.

Have two or three quarts of black currants, put them in a jar, and set them in a dry place. Let them stand a few days, take a kitchen cloth, and wring them, and to every pint allow three-quarters of a pound of brown sugar, put it on the fire in a brass pan and let it boil five minutes; run it through a piece of muslin, and bottle it up when cold.

Currant Syrup.

Take one pint of the expressed juice of currants, and two pounds of the best refined sugar; dissolve the sugar in the juice by the aid of heat, not exceeding 212°, and set aside for twen-

ty-four hours. Then remove the seum and strain through very fine muslin, if any sediment be present. To preserve for use, add one gill of alcohol at sixty per cent.

Grape Syrup.

Mash the grapes and stand aside in a warm place for four days. Cover to keep out dust and insects. Then turn into a jelly-bag and let drip slowly. If you wish it very clear, filter through filtering paper. Measure the juice, and to every pint allow two pounds of granulated sugar. Mix the juice and sugar together until only a small portion settles to the bottom, then pour it into a farina boiler, place over the fire, and the heat of the water as it boils around will dissolve the sugar. When this has been thoroughly effected, take it from the fire and stand aside to cool. When cold, put into small bottles, fill them to the top, cork tightly, seal and keep in a dark, cool, dry place.

Raspberry Syrup.

Put twenty-four pounds of raspberries into a jar, and pour over them four quarts of spring water, previously acidulated with ten ounces of tartaric acid. Let them remain twenty-four hours, then strain them, taking care not to bruise the fruit. To each pint of clear liquor allow one pound of loaf sugar; stir it occasionally. When quite dissolved pour it into a well-cleaned cask that will just contain it, except about a quart, which must be kept out for the purpose of filling up during the process of fermentation. When it ceases, bung up, and let it stand for two months, when it will be ready for bottling.

Strawberry Syrup.

Make this the same as you would Raspberry Syrup, substituting strawberries for raspberries.

Peaches—To Peel.

In peeling small peaches with a knife, too much of the peach is wasted; but by having a wire cage similar to those made for popping corn this waste is obviated. Fill the cage with peaches, and dip it into boiling water for a moment, then into cold water for a moment, and empty out—going on in the same way for all you wish to peel. This toughens the skin and enables you to strip it off, saving much in labor and waste.

Peach Mangoes.

Take unpared, fine freestone peaches; with a knife extract the stone from one side; place in a jar; pour over them boiling salted water, and let remain ten or fifteen minutes; wipe very dry; fill each cavity with grated horse-radish, a small piece of ginger root, one or two cloves and mustard seeds, prepared by pouring over them boiling water. Let them stand fifteen minutes and drain. Sew up the peaches and place in jars, as closely together as possible. Make a syrup in proportion of one pint sugar to three pints vinegar, and pour boiling hot over the peaches. They will be ready for use in a week.

Plum Cheese.

Bake the fruit in a stone jar, with a few of the kernels to flavor it; then pulp it through a coarse sieve, and to each pound of pulp, free from stone and skin, add a half pound of powdered loaf sugar, in a pan; boil and skim till the sides candy, when pour the cheese into shallow pans, previously rubbed with butter, and tie them over.

Plum Euchered.

Nine pounds blue plums, six pounds of sugar, two quarts of vinegar, one ounce of cinnamon; boil vinegar, sugar and spice together; pour over plums, draw off next morning and boil, pour back on plums; repeat the boiling five

mornings, the last time boiling the fruit in it about twenty minutes.

Tomato Figs.

Collect a lot of ripe tomatoes about one inch in diameter, skin, and stew them in the usual manner; when done, lay them on dishes, flatten them slightly, and spread over them a light layer of pulverized white or best brown sugar; expose them to a summer's sun, or place them in a drying house; when as dry as fresh figs, pack in old fig or small boxes, with sugar between each layer. If properly managed, the difference cannot be detected from the real article.

Another.—Pour boiling water over the tomatoes, in order to remove the

skins; then weigh them, and place them in a stone jar, with as much sugar as you have tomatoes, and let them stand two days; then pour off the syrup, and boil and skim it until no scum rises. Then pour it over the tomatoes, and let them stand two days, as before; then boil and skim again. After the third time, they are fit to dry, if the weather is good; if not, let them stand in the syrup until drying weather. Then place on large earthen plates or dishes, and put them in the sun to dry, which will take about a week, after which pack them down in small wooden boxes, with fine white sugar between every layer. Tomatoes prepared in this manner will keep for years.

CAKES AND COOKIES.

Making Cakes.

In making cakes it is necessary that the eggs should be well beaten till they get so thick as to be of the consistency of boiled custard. Butter and sugar should be stirred till it looks like thick cream, and till it stands up in the pan. It should be kept cool. If too warm it will make the cake heavy. Before you ice a cake dredge it all over with flour and then wipe the flour off. This will enable you to spread the icing more evenly. Large gingerbread burns easily, and may be baked in an earthen pan.

Cakes—Icing and Frosting for.

Beat the white of an egg to a full froth, and flavor with lemon or rose; then add gradually as much finely powdered sugar as will make it thick enough, beating it well all the time. Dust the cake over with flour, then gently rub it off, lay on the icing with a flat knife, stick on the ornaments while it is wet, and place it in the oven for a few minutes to harden, but not long enough to discolor it.

Another.—Beat up the whites of three eggs with three-quarters of a pound of the finest ground sugar and a little vinegar. Beat it up till very stiff, pour the icing over the cake, and smooth on the top and sides with a knife. Set the cake in a warm place until the sugar gets hard.

Almond.—Put on in a brass or copper pan four pounds of soft sugar with one pint of water, and let it boil from six to eight hours, then remove from stove, and mix with it two pounds of ground sweet almonds, stirring till it begins to get thick, then pour equally over the cake.

Almond, No. 2.—Mix together two pounds of ground sugar and one pound of ground sweet almonds, put this out on a clean board or table, make a space in the centre into which drop the yolks of six eggs, add a few drops of the essence of ratafia, and work with the hands into a stiff paste.

Boiled.—Two cupfuls of sugar, one-half cupful of water. Boil until it hairs. Pour very slowly into the

whites of two well beaten eggs—beaten until stiff. This frosting can be used as the foundation of all kinds. For chocolate frosting add five tablespoonfuls of chocolate, grated.

Butter.—Beat over a stove till smooth half a pound of white fresh butter; then add three ounces of fine, sifted flour, and heat together till very smooth. This is used for ornamenting cold fowls, turkeys, tongues, hams, and other cold meats.

Butter, No. 2.—Beat quarter of a pound of fresh butter to a cream, and add gradually half a pound of icing sugar which has been passed through a fine wire sieve. Add lemon juice or vanilla to flavor, and beat till soft enough to pass through an icing tube.

Caramel.—One cupful of brown sugar, one square of good chocolate, scraped fine, one tablespoonful of water. Simmer gently for twenty minutes, being careful not to let it burn. Spread on the cake while hot.

Chocolate.—Grate two ounces of best chocolate, put it on a small enameled saucepan with a half a gill of hot water, and stir till quite dissolved, then add half a pound of icing sugar, and stir again till quite smooth.

Coffee.—Heat in the oven, or on the stove, two ounces of roasted coffee beans, put them into a small enameled pan with one gill of boiling water, cover closely and leave them to infuse for an hour, then strain and return to the pan. Stir in half a pound of icing sugar, or more if required, to bring it to the proper consistency for coating cakes, pastry, etc.

Lemon.—Squeeze the juice of two lemons into a basin with half a pound of ground white sugar, and beat it for a short time. If wanted pink, add a little cochineal.

Lemon, No. 2.—Pour half a gill of boiling water over the grated rind of a lemon, and let it stand for twenty minutes, then add the juice of half the lemon, and strain it into a small saucepan. Allow it to get as hot as possible without boiling, then stir it gradually into half a pound of icing sugar. It should be poured over the cake, and smoothed with a knife dipped in hot water.

Orange.—The white of one egg and the juice of one orange. Stir in confectioners' sugar until of a consistency that will spread smoothly without running off the cake. Wait until the cake is cold before spreading.

Raspberry.—Mix two tablespoonfuls of raspberry jam with a half gill of hot water. Strain it into a small pan, and let it get as hot as possible without boiling. Pour it gradually, mixing well, into half a pound of icing sugar, and add a few drops of cochineal or carmine. If rather thin for coating cakes and pastry, add a little more sugar.

Vienna.—Put one pound of icing sugar through a fine wire sieve. Make a hole in the center of it, and drop in two whites of eggs, and beat for twenty minutes or half an hour, until the icing is soft and very white. A few drops of lemon juice should be added now and then while beating. A layer of this icing should be spread on the cake with a knife dipped in cold water, and when it is dry it can be ornamented with the icing that remains, using for the purpose an icing tube and bag.

Water.—Mix half a pound of icing sugar with water near boiling point, making it sufficiently thick to spread on the cake without letting it run over the sides, flavoring with pounded mace.

Cakes—Almond.

Take some sweet almonds, flour, and powdered sugar, of each $\frac{1}{4}$ lb., 7 eggs, and the outside yellow peel of 4

lemons shredded small. Pound the almonds, previously blanched, until they are very smooth, adding gradually the sugar and lemon-peel; then take them out, add the eggs, and beat the whole until it is as white as sponge paste; next add the flour, work well, put it into well-buttered pans, and bake in a slack oven, with eight or ten thicknesses of paper under them and one over them.

Angel Food.

Whites of eleven eggs, well beaten, one and one-half tumblers of granulated sugar, one spoonful of cream tartar, one teaspoonful of vanilla. Sift the sugar five times; add the cream tartar and sift again. Bake in a slow oven with a cup of water in the oven.

Apple Cake.

Take two cups of dried apples, stew just enough to cut easily, chop about as fine as raisins, and simmer in 2 cups of molasses 3 hours; 1 cup of sugar, 1 cup of sour milk, 1 of butter, 2 eggs, 5 cups of flour, 2 teaspoonfuls of soda, some salt, cloves and cinnamon. Mix with molasses warm. Put apples and molasses in before the flour. Bake in large cake dishes; it makes one large cake, or two small ones.

Dutch Apple Cake.

One pint flour, one-half teaspoonful salt, two heaping teaspoonfuls baking powder, one-fourth cup butter, one egg, one scant cup milk, four sour apples, two tablespoonfuls sugar. Mix the dry ingredients in the order given; rub in the butter, beat the egg and mix it with the milk, then stir this into the dry mixture. The dough should be soft enough to spread half an inch thick on a shallow baking pan. Core, pare and cut four or five apples into eighths; lay them in parallel rows on top of the dough, the sharp edge down, and press enough to make the edge penetrate slightly. Sprinkle the sugar

on the apples. Bake in a hot oven twenty or thirty minutes. To be eaten hot with butter as a tea cake, or with lemon sauce or with sugar and cream as a pudding.

Fancy Rock Almond Biscuits.

Beat up the whites of three eggs with a teaspoonful of vinegar and one pound of the finest ground sugar till very stiff and light. Blanch, dry, and mince half a pound of sweet almonds, and add to the above. Drop from the points of two teaspoons on slightly greased tins, and ornament on the top with small strips of angelica and colored almonds. Bake in a very slow oven till they become hard, but not in the least brown. The half of the quantity may be made pink by adding a little cochineal.

Ginger Biscuits.

Rub $\frac{1}{2}$ lb. of fresh butter into 2 lbs. of fine flour; add $\frac{1}{2}$ lb. of sifted sugar, and 3 oz. of pounded ginger. Beat up the yolks of 3 eggs, and take a little milk with which to make the above ingredients into a paste. Knead it all well together, and roll it out extremely thin, and cut it into the form of round biscuits with a paste-cutter. Bake them in a slow oven until crisp, taking care that they are a pale brown color.

Ginger Biscuits, No. 2.

Rub ten ounces of butter into one pound and three-quarters of flour. Mix it with four eggs, one pound of ground sugar, one ounce and a half of ground ginger, half an ounce of volatile, and one teacupful of water. Knead all together into a smooth dough; then roll it out thin, and cut them out with a round cutter. Brush them on the top with egg, put a small strip of orange peel upon the top of each, put them on greased tins, and bake in a quick oven from ten to fifteen minutes.

English Seed Biscuits.

One lb. flour, $\frac{1}{4}$ lb. sugar, $\frac{1}{4}$ lb. of butter, $\frac{1}{2}$ oz. of caraway seeds, 3 eggs. Roll out, cut round, and bake in a moderate oven.

Wine Biscuits.

Take 2 lbs. of flour, 2 lbs. of butter, and 4 oz. of sifted loaf sugar. Rub the sugar and butter into the flour, and make it into a stiff paste with milk; pound it in a mortar, roll it out thin, and cut into sizes or shapes to fancy. Lay them on buttered paper in a warm oven, on tin plates, having first brushed them over with a little milk. When done, you can give them a gloss by brushing them over with a brush dipped in egg. A few caraway seeds may be added, if liked.

Bachelor's Cake.

Beat one pound of soft sugar with half a pound of butter for fifteen minutes; mix three teacupfuls of buttermilk with two teaspoonfuls of carbonate of soda, and one of tartaric acid; add to the sugar and butter. Mix in one pound of raisins with one pound and a half of flour, one ounce of mixed orange peel; mix all together, and bake in a moderate oven two hours.

Banbury Cakes.

Work 1 lb. of butter into the same weight of dough, made for white bread, as in making puff-paste; then roll it out very thin, and cut it into oval pieces, or as the cakes are wanted. Mix some good moist sugar with an equal weight of currants, and wet them with water; then put a little upon each piece of paste; close them up, and place them on a tin with the closed side downwards and bake them. Flavor some powdered sugar with candied peel grated, or essence of lemon, and sift a little over the cakes as soon as they come out of the oven.

Bath Cakes.

Mix well together $\frac{1}{2}$ lb. of butter 1 lb. of flour, 5 eggs, and a cupful of yeast. Set the whole before the fire to rise, which effected, add 4 oz. of finely-powdered sugar and 1 oz. of caraways; roll the paste out into little cakes. Bake them on tins.

Bread Cake.

One and $\frac{1}{2}$ cups dough, 1 cup sugar, $\frac{1}{2}$ cup of butter, 2 eggs, $\frac{1}{4}$ teaspoonful of soda. Raisins and spice to suit the taste. Mix with the hands until the dough seems thoroughly worked in, adding a little more flour if the dough is thin. Let it rise $\frac{1}{2}$ an hour. It rises slowly and but little before going into the oven.

Another.—Two eggs, one-half cup of butter, one cup of sugar, one pint of bread dough, when just light enough to put in the pans. Knead all well with the hands for twenty minutes, then add one cupful of raisins, a piece of citron, chopped, one-half teaspoonful of cloves, one teaspoonful of cinnamon; one half teaspoonful of soda, dissolved in a little hot water, added the last thing.

Cherry Cake.

Beat half a pound of fresh butter to a cream, add half a pound of sugar, and beat well again. Drop in one egg from the shell, add a little flour, and beat for five minutes. Continue until five eggs and ten ounces of flour have been added, and then stir in half a teaspoonful of vanilla, and six ounces of glace cherries. Butter a cake tin, line it with buttered paper, pour the cake mixture in, and bake for an hour or longer. The oven should be rather hotter than usual at first, as the cherries, being heavy, are apt to sink to the bottom of the cake if it is slowly baked. Cover the cake with almond icing when cold.

Chocolate Cake.

One and a half cupfuls of sugar, half cupful of butter, half cupful of milk, one and three-fourths cupfuls of flour, quarter of a pound of good chocolate, three eggs, teaspoonful of cream of tartar, half teaspoonful of soda. Scrape chocolate fine. Add to it five tablespoonfuls sugar (in addition to cupful and a half). Beat butter to a cream, gradually add the cream, beating constantly. Add three tablespoonfuls boiling water to chocolate and sugar. Stir over the fire until smooth and glossy. Stir into the sugar and butter. Add eggs, well beaten, then milk and flour, in which soda and cream of tartar are mixed. Bake twenty minutes in moderate oven.

Black Chocolate Cake.

One cake good chocolate, grated, one-half cup of sweet milk and yolk of one egg. Boil this together until soft and add, when cool, one-half cupful of butter, one-half cupful of sour milk, two small cupfuls of sugar, two eggs or yolks of six, two cupfuls of flour and one teaspoon of soda. Flavor with vanilla.

Another.—One cupful butter, two cupfuls of sugar, four eggs, three-fourths cupful of milk, one cupful of grated chocolate. Rub sugar and butter to a cream, add the eggs well beaten, then the milk, and last of all the chocolate. Bake in a slow oven. Frost with white frosting.

Chocolate Paste Cake.

Two cups of sugar, 1 cup of butter, 3 eggs, 3 cups of flour, $\frac{3}{4}$ of a cup of milk, $\frac{1}{4}$ a teaspoonful of soda, 1 teaspoonful of cream of tartar. Paste: Chocolate, 2 oz., 1 cup of sugar, $\frac{3}{4}$ of a cup of sweet milk; boil half down. This makes one cake of four layers with paste between.

Cinnamon Cakes.

One cup of sugar; $\frac{3}{4}$ of a cup of molasses; 1 cup of butter; $1\frac{1}{2}$ teaspoonfuls of ground cinnamon; 2 level spoonfuls of soda, dissolved in 6 large tablespoonfuls of warm water; stir well, and add flour enough to allow to roll quite thin; cut out with a biscuit cutter, and bake in a quick oven.

Cookies.

One cupful of butter, two of sugar, five of flour, a teaspoonful of saleratus dissolved in four of milk, one egg, teaspoonful of vanilla. Roll thin and bake in quick oven.

Finger Cookies.

Take one cup of sugar and one of molasses, one egg and one teaspoonful of soda in a quarter of a cup of boiling water, two-thirds of a cup of lard and one tablespoon of ginger. Roll out thick.

Peanut Cookies.

Stir together three cups of flour, two rounded teaspoonfuls of baking powder, half teaspoonful of salt; add to this a good half cupful of crushed peanuts (crush with a rolling pin); rub into this a tablespoonful of butter; add one and a quarter cups of sweet milk. Stir into a batter that can be laid on a well floured molding board and rolled to a thickness of one-half an inch. Handle as little as possible. Cut with a biscuit cutter and bake in a hot oven.

Another.—Two rounding tablespoonfuls of butter, one-half cupful sugar creamed together, one egg, one cupful pastry flour, or two-thirds cupful bread flour, one teaspoonful baking powder, one-fourth teaspoonful salt, two tablespoonfuls milk, one cupful chopped peanuts. Do not attempt to roll them. Drop by the teaspoonful onto buttered tins about two inches apart. In baking they will spread out flat. If they should be too thick add a little milk

cautiously, but do not have the mixture thin enough to spread when it is dropped onto the pan. These improve by keeping, and are almost as good as when made with other nuts.

Crullers.

Six eggs, whites and yolks separately, six tablespoonfuls of melted butter, six heaping spoonfuls of sugar, half powdered, and the other half coffee sugar, flour to make it of sufficient thickness to roll out and cut with a paste jigger. Family flour is preferred.

Another.—Half a pound of butter, $\frac{3}{4}$ of a lb. of sugar, 2 lbs. of flour, 1 nutmeg, $\frac{1}{2}$ a teaspoonful of soda dissolved in $\frac{1}{2}$ a teacup of water or milk; 6 eggs. (See Doughnuts).

Currant Loaf.

To make a good-sized one, take four pounds of loaf-bread dough, and work into it half a pound of melted butter, one pound of stoned raisins, three quarters of a pound of cleaned currants, four ounces of orange peel cut small, and one ounce of mixed spices. Knead it till the fruit and spice are thoroughly mixed with the dough. Have an oven tin and a cake hoop greased, place the hoop on the tin, into it put the loaf, cover up, and let it stand in a warm place for an hour to rise. Bake in a hot oven for an hour to an hour and a half, and glaze on the top with sugar and water.

Currant Cake.

Half cup butter, one cup sugar, two eggs, yolk of one egg, half cup of milk, two cups of flour, three teaspoons baking powder, one cup currants mixed with one tablespoon of flour. Cream the butter, add sugar gradually, and eggs and egg yolk well beaten. Then add milk, flour mixed and sifted with baking powder and currants. Bake forty minutes in a buttered and floured cake pan.

Delicate Cake.

One cup of sugar, one-half cup of butter, one-half cup of milk, whites of four eggs beaten stiff, a little grated lemon peel and juice of one-half lemon, two small cups of flour, one and half teaspoonfuls of baking powder.

Diet Loaf.

Beat a pound of eggs with a pound of sifted sugar till it looks quite thick and white. Then add a little ginger and cinnamon, powdered, some caraway seeds, and one pound of dried flour. Butter a mold and bake in oven.

Doughnuts.

Half a cup of butter, $2\frac{3}{4}$ cups of sugar well rolled and sifted, 4 eggs, 1 teaspoonful of saleratus, 1 cup of sour milk, 1 nutmeg, flour enough to roll; cut in any shape desired, either in strips or twisted; have the lard hot enough for the cakes to rise to the surface as soon as put in. This is an excellent fried cake.

Fig Cake.

Whites of three eggs, two cups of sugar, one cup of butter, one cup of sweet milk, three cups of flour, one teaspoonful of soda, two teaspoonfuls of cream tartar.

Filling.—1 lb. figs, chopped fine, one cup of sugar, one cup of milk. Cook slowly until it thickens. When cool spread between the layers.

French Cake.

Take six eggs, separate yolks from whites, beat the yolks with half a pound of soft sugar and two ounces of butter; blanch and pound with two ounces of sugar, two ounces of sweet and half an ounce of bitter almonds; beat up the whites to a snow, mix in half a pound of common flour, quarter of a pound of rice flour, put all together and season with the grated rind and juice of one lemon. Bake one hour in

a moderate oven and cover with minced almonds. Cut out with an oval or star cutter, lay them on greased tins, and bake in a moderate oven from ten to fifteen minutes.

Fruit Cake.

Two lbs. flour, 1 lb. sugar, 1 lb. butter, 12 eggs, 2 lbs. currants, 2 lbs. raisins, 1 lb. citron; lemon, nutmeg, and mace to taste. Beat it very light. The fruit should be floured and stirred in last, and more flour added if necessary. Bake in 1 large pan in a steady, well-heated oven for 4 or 5 hours, letting it cool gradually in the oven. When perfectly cool it may be frosted.

Fruit Cake from Dough.

Two cups sugar, one cup butter, one pint bread sponge, two eggs, one teaspoonful of soda. As much fruit as you wish, spices to suit taste. Use flour enough to make stiff as common cake. Set in a warm place to raise for one hour. Bake in a moderate oven as for bread.

Gingerbread.

Two cups of molasses, 1 cup butter; 2 teaspoons of ginger, and 1 even full of bi-carbonate of soda; 1 teacup of water warm; flour enough to make a soft dough. After it is placed in the bake tin, flour your hands to pat it into shape, and with a knife cross-cut the top into squares or diamonds. Bake until done.

Gingerbread—Spice.

Take 3 lbs. of flour, 1 lb. of butter, 1 lb. of moist sugar, 4 oz. of candied orange or lemon peel, cut small; 1 oz. of powdered ginger, 2 oz. of powdered allspice, $\frac{1}{2}$ an oz. of powdered cinnamon, a handful of earaway seeds, and 3 lbs. of molasses; rub the butter with your hand into the flour, then add the other ingredients, and mix it in the dough with the molasses; make it into cakes, and bake it in a warm oven.

Soft Gingerbread.

Beat one egg thoroughly; add one cup best black molasses, teaspoonful salt, one-half cupful of buttermilk, a tablespoonful of ginger, and flour enough to make a thick batter. Lastly add a tablespoonful of melted butter. Beat hard; bake slowly.

Another.—Six cupfuls of flour, three of molasses, one of cream, one of lard or butter, two eggs, one teaspoonful of saleratus, and two of ginger.

Hard Gingerbread.

Three-fourths pound of sugar, one-half pound of butter, four eggs, tablespoonful of sour milk, two cups black molasses, one teaspoon soda, one spoon ginger, and flour to roll. Cut in squares.

Ginger Nuts.

One quart of New Orleans molasses should be seasoned with a tablespoonful of grated cinnamon, the same of black pepper, a teaspoonful of ground cloves and the grated rinds of two oranges and a lemon, stirred well together and let stand a day. Then mix it with flour enough for a stiff batter, four teaspoonfuls of baking powder and a large spoonful of lard. Roll into strips as thick as your finger and cut into nuts half an inch long. Bake brown and keep apart so that they will not stick.

Cakes—Ginger.

Make a paste with sugar, 1 lb.; powdered ginger, 4 oz.; flour, 2 lbs.; water, 1 pt.; butter, $\frac{1}{4}$ lb.; and 1 cup of candied orange peel, grated; form them into cakes, and prick them with a fork before baking them.

Ginger Snaps.

One pint of baking molasses, 1 lb. of sugar, $\frac{1}{4}$ lb. of lard, $\frac{1}{4}$ oz. of ginger, and 1 tablespoonful of cinnamon. Work the lard, molasses and sugar together, and add flour enough to make a

stiff dough. Roll out thin, cut with a round cake-cutter, and bake quickly.

Gipsy Cake.

One sheet sponge cake spread with jelly, one glass of wine poured over it, blanched almonds stuck in the cake. Pour a boiled custard over the whole.

Gold Cake.

One cupful of sugar, half cupful of butter, yolks of three eggs, one whole egg, half cupful of milk, one-fourth teaspoonful each of soda and cream of tartar, one and three-fourths cupfuls of flour. Mix butter and sugar together. Add eggs, milk, flavor and flour in the order named. Bake in two sheets for half an hour in a moderate oven. Frost it with boiled frosting.

Hailes Cake.

Cream together quarter of a pound of butter with six ounces of castor sugar. Drop in two eggs, add quarter of a pound of flour, and beat hard for five minutes, then add another quarter of a pound of flour and enough butter-milk to mix all to a smooth batter. Cut quarter of a pound of figs in small pieces and chop two ounces of almonds. Add these to the mixture, also one teaspoonful of lemon juice or a few drops of essence of lemon. Mix half a teaspoonful of carbonate of soda through quarter of a pound of ground rice, and stir it in thoroughly. Put into a well-buttered cake tin, lined with buttered paper, and bake in a moderate oven for an hour or longer.

Huckleberry Cake.

Dredge with flour a quart of large huckleberries; add a tablespoonful of pounded cloves and cinnamon, mixed; stir together half a pound of butter, half a pound of sugar and half a pint of molasses with half a pint of milk, in which dissolve a half teaspoonful of saleratus. Beat five eggs and add them to the mixture with sufficient

flour to make a thick batter. Then stir in the berries. Bake in a large pan.

Jumbles.

One and a half cups of sugar, one-half cup of butter, two eggs, one-half teaspoonful soda, one teaspoonful cream of tartar (dissolved in a little sweet milk), flour enough to make like pie-crust; bake in waffle irons. Fill the little holes with light and dark jelly, alternately.

Kentish Cake.

Beat to a cream quarter of a pound of butter and quarter of a pound of castor sugar. Add gradually quarter of a pound of flour and three eggs, beating the mixture for several minutes after each egg is added. Stir in one ounce of grated chocolate, and the same of ground almonds and desiccated cocoanut, and flavor with quarter of a teaspoonful of vanilla. Butter a flat round cake-tin, line it with buttered paper, and put the cake mixture into it, spreading it evenly over the tin. Bake for thirty or forty minutes. When the cake is cold, cover it with the following icing:—Put in a saucepan quarter of a pound of chocolate powder and a tablespoonful of water, and stir until the chocolate is melted. Add quickly quarter of a pound of icing sugar, and spread the icing over the cake with a knife dipped in hot water.

Laver Cake.

One cupful of butter, 2 of sugar, $3\frac{1}{2}$ of flour, 1 cupful of milk, 5 eggs, the whites of two being left out for frosting, $1\frac{1}{2}$ teaspoonfuls of baking powder. Beat the butter to a cream, add the sugar gradually, then the eggs well beaten, then the milk, and last of all the flour and baking powder. Any kind of filling can be used.

Lemon Cake.

Beat 6 eggs, the yolks and whites separately, till in a solid froth; add to

the yolks the grated rind of a fine lemon and 6 oz. of sugar dried and sifted; beat this a $\frac{1}{4}$ of an hour; shake in with the left hand 6 oz. of dried flour; then add the whites of the eggs and the juice of the lemon; when these are well beaten in, put it immediately into tins, and bake it about an hour in a moderately hot oven.

Lemon Cakes.

Flour and sugar, of each 1 lb.; eggs, 1 dozen; grated peel and juice of 4 lemons; whisk the eggs to a high froth, and then gradually add the rest. Bake in small oval tins, well buttered, and place 6 thicknesses of paper beneath each tin. Thinly ice them.

Lunch Cake.

Beat to a cream six ounces of butter, add eight ounces of ground sugar, and beat for a short time, drop in an egg, beat a few minutes, then another egg, and so on, till you have put in four. Mix one gill and a half of sweet milk with half a teaspoonful of carbonate of soda, and two tablespoonfuls of vinegar. Mix together one pound of flour and half a pound of currants, add the half of this to the butter, sugar, and eggs, then mix the whole ingredients together; and bake in a moderate oven from an hour to an hour and a half.

Madeira Cake.

Beat twelve ounces of butter to a cream, add twelve ounces of ground sugar, and beat for some time, drop in two eggs, beat for a few minutes, again drop in two eggs, and so on, till you have added twelve. Mix in gently one pound and a quarter of flour, a little volatile, and ten drops of the essence of lemon. Dust a little fine ground sugar on the top, then three thin slices of citron peel, and bake from an hour and a half to two hours in a moderate oven.

Hickory Nut Cake.

Two cupfuls of sugar, half a cupful of sweet milk, one cupful of butter, one quart of nuts, six eggs, juice of one lemon, two teaspoonfuls of baking powder. Rub butter and sugar to a cream, add the milk, then the eggs well beaten, then the nuts and lemon juice. Mix thoroughly. Bake in a rather thin layer about two inches thick. Frost with white frosting. Cut into squares.

Oat Cakes—Scotch.

Put three handfuls of best Scotch oatmeal into a basin, with a bit of butter the size of a nutmeg; add as much cold water as will form it into a cake. Press the cake out with the hands until it is thin, then roll with the rolling pin till it is almost as thin as a silver dollar. Have the griddle already heated, sift a little meal over it, and lay on the cake. When the under side is brown, toast the upper side in a toaster before the fire to make it crisp. These cakes should be kept in the meal chest among the dry meal to preserve their crispness, which is their peculiarity. They are extremely nice to eat with cheese.

Plum Cake.

Take one pound of soft sugar, and beat it with one pound of butter (previously beaten to a cream) for twenty minutes; add two eggs, and beat for some time, and so on until you have added twelve; then add a pound and a half of sifted flour mixed with one pound and a half of cleaned currants, and half a pound of orange peel cut small. Bake three hours in a slow oven.

Rich Plum Cake.

Beat to a cream half a pound of salt butter and half a pound of fresh in a basin, over a stove or hot-plate, then add one pound of ground sugar, and beat together till white; add two eggs,

beat for five minutes, then another two, and so on, till you have put in six. Have one pound and a half of flour sifted, from which take a handful and shake into the mixture, then two eggs, and beat for five minutes, again a handful of flour, and so on, till you have added in all twelve eggs. Have one pound and a half of currants cleaned, half a pound sweet almonds, blanched and cut small, one pound of orange peel, and half a pound of citron, also cut down, and half a pound of sultana raisins. Mix all the fruit with the remainder of the flour, then all together, taking care not to beat the cake after you have added the fruit and flour, and bake in a moderate oven for nearly three hours.

Plain Raisin Cake.

Two cups of brown sugar, one-half cup of butter, one cup of sour cream, one teaspoonful of saleratus, two cups of seeded raisins, three cups of flour, one-half grated nutmeg, three eggs. Bake in a slow oven.

Cake Sandwiches.

Four eggs, $\frac{1}{2}$ lb. of pounded lump sugar, $\frac{1}{2}$ a lb. of fresh butter, $\frac{1}{2}$ a lb. of flour. Beat the butter to cream, dust in the flour, and add the eggs well whisked; beat with a fork for $\frac{1}{4}$ of an hour, butter a tin, and pour in half of the mixture. Bake from fifteen so twenty minutes. Remove from the tin, butter again, and add the other half of the mixture. Bake as before. When cool, spread jam quickly over 1 portion of the cake, place the other part over it, and cut into whatever shape you prefer.

Soda Cakes.

Mix a teaspoonful of soda and 1 of tartaric acid with $\frac{1}{2}$ a teaspoonful of salt; melt 5 oz. of butter in a large cupful of milk; add these ingredients to 1 lb. of flour, $\frac{1}{2}$ lb. of moist sugar,

and 2 oz. of caraway seeds. Work into a soft dough, and, if not wet enough, add more milk; put into mince-pie pans to bake.

Spice Cakes.

Two-thirds eup of butter, two cups of sugar, one cup of sweet milk, four and one-half eups of flour, four eggs, two teaspoonfuls cream of tartar, one teaspoonful of soda, cinnamon, cloves, allspice and nutmeg.

Cream Sponge Cake.

One cup of sugar, one cup of sifted flour, four eggs, four and one-half tablespoons of milk, two teaspoons of baking powder sifted with the flour, a little salt and lemon essence. Bake in jelly tins.

Cream. Pint of thick cream sweetened and flavored with vanilla. Beat with an egg beater until very stiff. Spread between and on top of the layers of sponge cake.

Sponge Cake.

Beat 12 eggs as light as possible, (for sponge and almond cake they require more beating than for anything else); beat 1 lb. of loaf sugar, powdered and sifted by degrees, into the eggs, continuing to beat some time very hard after all the sugar is in, (none but loaf sugar will make light sponge-cake). Stir in gradually a teaspoonful of powdered, mixed cinnamon and mace, a grated nutmeg, and 12 drops of lemon essence; lastly, by degrees, put in 10 oz. of sifted flour, dried near the fire, stirring the mixture very slowly with a knife. If the flour is stirred too hard the cake will be tough. It must be done gently and lightly, so that the top of the mixture will be covered with bubbles. As soon as the flour is all in begin to bake, as setting will hurt it. Put it in small tins, well buttered, or in 1 large tin pan. The thinner the pans the better the sponge cake. Fill the small tins about half

full. Grate loaf sugar over the top of each before setting it in the oven.

Sponge Cake, Cheap.

One cup white sugar, 1 egg, butter the size of a walnut; beat together; then take 1 cup of sweet milk, add $\frac{1}{2}$ teaspoonful of soda, 2 cups of flour, 1 teaspoonful of cream of tartar; flavor with anything you wish; mix well, and bake in pie pans 20 minutes.

Another.—Take 5 eggs, and $\frac{1}{2}$ a lb. of loaf sugar sifted; break the eggs upon the sugar, and beat all together with a fork for $\frac{1}{2}$ an hour. Previously take the weight of $2\frac{1}{2}$ eggs, in their shells, of flour. After you have beaten the eggs and sugar the time specified, grate in the rind of a lemon, (the juice may be added at pleasure), stir in the flour, and immediately pour it into a tin lined with buttered paper, and let it be instantly put into rather a cool oven.

Sultana Cake.

Take one pound of soft sugar, beat with one pound of butter (previously beat to a cream) for twenty minutes; add two eggs, and beat for some time, and so on until you have added twelve; then mix in gently one pound and a half of sifted flour, along with two pounds of sultana raisins. Bake in a slow oven for two hours.

English Tea Cake.

Add two eggs, two teaspoonfuls each of butter, creamed sugar, and two cupfuls of flour. Cream the butter and the sugar very light, beat in the whipped yolks, stir and beat for a minute and add the flour alternately with the stiffened whites. Bake in jelly cake tins, butter, and eat while fresh.

Vienna Cake.

Beat half a pound of butter to a cream, add half a pound of ground sugar, and beat a little longer. Drop

in two eggs, beat a few minutes, again drop in two eggs, and so on till eight are in. Mix in gently one pound of flour and a little volatile. Have six pieces of paper seven inches long and four broad, brush with lard, drop the cake in equal quantities on each of them, smooth with a knife on the top, and bake ten minutes in a quick oven. When you take them out, turn over on clean paper, and spread with various preserves. Lay the one above the other, pare the edges, and ice all over (see icing for cakes). Ornament with icing, angelica, and variously colored jellies. This makes a very nice dish for a sweet course.

Cake—Wedding.

Four lbs. fine flour well dried, 4 lbs. fresh butter, 2 lbs. loaf sugar, $\frac{1}{4}$ of a lb. of mace pounded and sifted fine, and the same of nutmegs. To every lb. of flour add 8 eggs; wash 4 lbs. of currants, and let them be well picked and dried before the fire; blanch 1 lb. of sweet almonds, and cut them lengthwise very thin; 1 lb. of citron, 1 lb. of candied orange, the same of candied lemon; $\frac{1}{4}$ a pint of brandy. When these are made ready, work the butter with your hand to a nice cream, then beat in your sugar for a $\frac{1}{4}$ of an hour; beat the whites of your eggs to a very strong froth, and mix them with your sugar and butter; beat your yolks $\frac{1}{4}$ an hour at least, and mix them with your cake; put in your flour, mace and nutmeg; keep beating it well till your oven is ready; pour in the brandy, and beat the currants and almonds lightly in. Tie 3 sheets of white paper round the bottom of your hoop to keep it from running out, rub it well with butter, put in your cake, lay the sweetmeats in layers, with cake between each layer, and after it is risen and colored cover it with paper; it will require 3 hours to bake properly.

English Walnut Cake.

One cup of sugar, one-half cup of butter, one-half cup of milk, two cups of flour, two eggs, one heaping teaspoonful of baking powder, one large cup of stoned raisins, one large cup of chopped walnuts. Flour the nuts and raisins before putting them in the cake. This is very good.

Cold Water Cake.

Two cups sugar, one-half cup butter, three cups flour, one cup water, four eggs, two teaspoonfuls baking powder, one teaspoonful vanilla. Rub sugar

and butter to a cream; add the eggs well beaten, then add the water, then the flour and baking powder.

Cookies.

Two cupfuls of sugar, one cupful of sour milk, two cupfuls of butter, three eggs, one teaspoonful of soda. Rub butter and sugar to a cream, add the eggs well beaten, then the milk, to which the soda has been added, and then enough flour so that it can be handled without sticking. Roll very thin, sprinkle with sugar and cinnamon and bake quickly.

CANDIES AND MISCELLANEOUS.**Candies—To Clarify Sugar for.**

To every lb. of sugar put a large cup of water; put it in a brass or copper kettle, over a slow fire, for $\frac{1}{2}$ an hour; pour into it a small quantity of isinglass and gum arabic dissolved together. This will cause all impurities to rise to the surface; skim it as it rises. Flavor according to taste.

All kinds of sugar for candy are boiled as above directed. When boiling loaf sugar, add a teaspoonful of rum or vinegar, to prevent its becoming too brittle while making.

Loaf sugar when boiled, by pulling and making into small rolls, and twisting a little, will make what is called rock or snow. By pulling loaf sugar after it is boiled, you can make it as white as snow.

Caramels.

Two cupfuls of brown sugar, one cupful of molasses, one tablespoonful of butter, two tablespoonfuls of flour, one-half cupful of sweet milk, one-half cake of chocolate. Flavor with teaspoonful of vanilla. Made like the following.

Chocolate Caramel.

Half a lb. chocolate, 3 lbs. dark brown sugar, $\frac{3}{4}$ of a lb. of butter, a

small teacup of milk; season with vanilla, or grated lemon or orange peel. Boil it very quickly over a hot fire, stirring constantly. When it becomes hard on being dropped in water, take it off the fire, and stir for a few moments before pouring into buttered dishes. Before it is quite cool pour into little squares. Those who like the caramel very hard need not stir it, as this makes it "sugary." The grated peel should not be put in till the caramel is taken from the fire.

Chocolate Cream Candy.

Chocolate, scraped fine, $\frac{1}{4}$ oz.; thick cream, 1 pint; best sugar, 3 oz.; heat it nearly to boiling, then remove it from the fire, and mill it well. When cold add the whites of 4 or 5 eggs; whisk rapidly and take up the froth on a sieve; serve the cream in glasses, and pile up the froth on top of them.

Another.—Take fresh milk enough to fill 12 glasses, and boil with it 2 oz. of grated chocolate and 6 oz. of white sugar; then beat the yolks of 6 eggs, to which add slowly the chocolate milk, stirring slowly one way. Flavor with vanilla boiled in milk; when quite mixed, fill your cups and

place in water and boil for an hour. Serve when cold.

Candied Citron.

Cut the peels in half, then soak them in water for two hours; change the water, and soak for two hours more; repeat the operation until the water ceases to be bitter; drain them, and put them into hot syrup, until they become soft and partly transparent, then take them out and dry them.

Cocoanut Candy.

One and a half pounds of white sugar, half cupful of sweet milk. Boil together for ten minutes, add one grated cocoanut, boil ten minutes more. Pour out on buttered dish. When cool cut into bars.

Cream Vanilla Candy.

Two cupfuls of granulated sugar, one cupful and a half of water, one tablespoonful of vinegar. Cook until it hardens in water. Put into greased pans. When cool enough pull as molasses candy. Add a teaspoonful of vanilla just before putting it into the pans to cool.

Fig Candy.

Take 1 lb. of sugar and 1 pint of water, and set over a slow fire. When done, add a few drops of vinegar and a lump of butter, and put into pans in which split figs are laid.

Fruits—Candying.

Various fruits may be candied or crystallized by putting them for a few hours in scalding hot syrup, made with three pounds and a half of white sugar, boiled for a few minutes in one pint of orange flower or rose-water. The fruit should be steeped in the hot syrup for two or three hours, then strained, and put into an oven with the door open. This will dry the remaining moisture, and the sugar will crystallize round the fruit.

Fruit Candy.

Take 1 lb. of best loaf sugar; dip each lump into a bowl of water, and put the sugar into your preserving kettle. Boil it down and skim it until perfectly clear, and in a candying state. When sufficiently boiled, have ready the fruits you wish to preserve. Large white grapes, oranges separated into very small pieces, or preserved fruits, taken out of their syrup and dried, are very nice. Dip the fruits into the prepared sugar while it is hot; put them in a cold place, and they will soon become hard.

Ginger Candy.

Boil a pint of clarified sugar until, upon taking out a drop of it on a piece of stick, it will become brittle when cold. Mix and stir up with it, for a common article, about a teaspoonful of ground ginger; if for a superior article, instead of the ground ginger, add the white of an egg, beaten up previously with fine sifted loaf sugar, and 20 drops of the strong essence of ginger.

Ginger Lozenge Candy.

Dissolve in $\frac{1}{4}$ of a pint of hot water, 1 oz. of gum arabic; when cold, stir it up with $1\frac{3}{4}$ lbs. of loaf sugar, and a spoonful of powdered ginger, or 12 drops of essence of ginger. Roll and beat the whole up into a paste; make it into a flat cake, and punch out the lozenges with a round stamp. Dry them near the fire or in an oven.

Lemon Candy.

Take 3 lbs. of coarse, brown sugar; add to it 3 teacupfuls of water, and set it over a slow fire for $\frac{1}{2}$ an hour; put in it a little gum arabic, dissolved in hot water; this is to clear it. Continue to take off the scum as long as any rises. When perfectly clear, try it by dipping a pipe-stem first into it and then into cold water, or by taking a spoonful of it into a saucer; if it is done

it will snap like glass. Flavor with the essence of lemon, and cut it into sticks.

Molasses Candy.

Two cups of molasses, 1 of sugar, 1 tablespoonful of vinegar, a piece of butter the size of walnut. Boil constantly for 20 minutes, stirring all the time; when cool enough to pull, do it quickly, as it will come white rapidly.

Another.—Take a clean tin or porcelain kettle of large size, so that there will be no danger of boiling over; put in a sufficient quantity of good molasses, place it over a good fire, and boil briskly until it will be brittle when cooled—which may be known by dipping a little of it into a dish of cold water; then pour into well buttered pans not over an inch thick. Let it cool until it can be handled, then pull smartly until white. Draw out on a clean table into sticks.

Peanut Nougat.

One pound sugar and one quart peanuts. Shell, remove skins and finely chop nuts. Sprinkle with one-fourth teaspoonful salt. Put sugar in a perfectly smooth granite saucepan, place on stove and stir constantly until melted to a syrup, taking care to keep sugar from sides of pan. Add nut meat, pour at once into warm buttered tin, and mark in small squares. If sugar is not removed from stove as soon as melted, it will quickly caramelize.

Nut Kisses.

Beat the whites of two eggs very light, add twenty teaspoonfuls of pulverized sugar, two tablespoonfuls of brandy, some cinnamon and a cupful of chopped nuts. Butter a paper and drop tablespoonfuls of this mixture on. Bake in a moderate oven until a light brown.

Candied Orange Peel.

Soak the peels in water, which must be changed, until they lose their bitterness, then put them into syrup until they become soft and transparent; lastly, take them out and place them to dry.

Plum Sweetmeats.

Take Danson plums that are perfectly ripe, peel and divide, and take out the stones; put over a gentle heat to cook in their own juice; when soft rub through a sieve and return to the stove, adding just enough sugar to sweeten, a little cinnamon, and, when nearly done, wine in quantity to suit the taste. This is done more to keep the sweetness than for the flavor, as self-sealing cans are not used here. All preserves are pasted up with the white of eggs.

Stuffed Prunes.

Wash and soak the prunes in cold water for several hours. Put them in a sauce pan, cover with fresh cold water and boil slowly, ten minutes. Remove from the fire and let them cool in the water. Drain, and carefully remove the pits, and fill with fine chopped almonds. Close each one so as to give them their original form, roll in powdered sugar.

Butter Scotch Candy.

Take 1 lb. of sugar, and 1 pint of water; dissolve and boil. When done add 1 tablespoonful of butter, and enough lemon juice and oil of lemon to flavor.

Taffy.

Put into a pan, or some shallow vessel, a $\frac{1}{4}$ of a lb. of butter and 1 lb. of brown sugar; set it upon the stove, and stir together for 15 minutes, or until a little of the mixture dropped into a basin of water will break clean between the teeth without sticking to them. Any flavoring that is desired.

—as lemon, pineapple, or vanilla—should be added just before the cooking is completed. The taffy, when done, should be poured into a shallow dish which is buttered on the bottom and edges. By drawing a knife across it when partially cool, it can easily be broken into squares. Molasses may be used instead of sugar, but it is not so brittle.

Everton Taffy Candy.

To make this favorite and wholesome candy, take $1\frac{1}{4}$ lbs. of moist sugar, 3 oz. of butter, a teacup of water, and 1 lemon. Boil the sugar, butter, water and half the rind of the lemon together, and when done which will be known by dropping into cold water, when it should be quite crisp; let it stand aside till the boiling has ceased, and then stir in the juice of a lemon. Butter a dish, and pour it in about a $\frac{1}{4}$ of an inch in thickness. The fire must be quick and the taffy stirred all the time.

Common Twist Candy.

Boil 3 lbs. of common sugar and 1 pint of water over a slow fire for $\frac{1}{2}$ an hour without skimming. When boiled enough take it off; rub the hands over with butter; take that which is a little cooled and pull it, as you would molasses candy, until it is white; then twist or braid it, and cut it up in strips.

Salted Almonds.

In preparing almonds for salting it is important that they do not remain too long in the blanching water. Boiling water is often poured over the almonds and the bowl left untouched in the press of other preparations. The hot water draws out the bitter prussic acid taste of the skin, and if the nuts are left to cool in the water they will reabsorb it. In case they have been thus forgotten it is a good

plan to rinse the nut meats with boiling water after the skin comes off.

Three Meals for an Invalid.

Breakfast.—Baked apple; wheatlet with cream; baked sweetbreads, previously parboiled, then seasoned, with a very little water, and put into the oven to “finish”; bread and butter; cocoa.

Dinner.—Chicken broth nicely seasoned; baked potato; rice well cooked and dressed with a little cream and salt; chicken stewed; bread and butter; tea; orange (for dessert) served daintily.

Supper.—Toast, with a little salt and hot cream poured over when eaten; soft boiled egg kept hot by placing cup in a dish of very hot water; bread and butter; prunes or ripe fruit in season; weak tea or milk.

Cookery for Children.

Food for Infants.—Take of fresh cow's milk, one tablespoonful, and mix with two tablespoonfuls of hot water; sweeten with loaf sugar, as much as may be agreeable. This quantity is sufficient for once feeding a new-born infant; and the same quantity may be given every two or three hours—not oftener—till the mother's breast affords natural nourishment.

Milk for Infants Six months Old—

Take one pint of milk, one pint of water boil it, and add one tablespoonful of flour. Dissolve the flour first in half-a-teacupful of water; it must be strained in gradually, and boiled hard twenty minutes. As the child grows older, one-third water. If properly made, it is the most nutritious, at the same time, the most delicate food that can be given to young children.

Nursery Biscuits or Crackers, soaked in boiling water or milk and beaten up well with a fork are very beneficial to some infants, while others thrive best on one or other of the many infants' foods which are now manufactured.

Broth, made of mutton, veal or chicken with stale bread toasted, and broken in, is safe and wholesome for the dinners of children when first weaned.

New Milk, with a very little loaf sugar, is good and safe food for young children. From three years old to seven, pure milk, into which stale bread is crumbled, is the best breakfast for a child.

Milk Porridge.—Stir four tablespoonfuls of oatmeal, smoothly, into a quart of milk, then stir it quickly into a quart of boiling water, and boil it up a few minutes till it is thickened: sweeten with sugar. Oatmeal, where it is found to agree with the stomach, is much better for children, being a mild aperient as well as cleanser; fine flour in every shape is the reverse. Where biscuit powder for powdered cracker is in use, let it be made at home; this, at all events, will prevent them getting the sweepings of the baker's counters, boxes, and baskets.

For a Child's Luncheon—Good sweet butter, with stale bread, is one of the most nutritious, at the same time the most wholesome articles of food that can be given children after they are weaned.

Meats for Children.—Mutton and poultry are the best. Birds and the white meat of fowls are the most delicate food of this kind that can be given. These meats should be slowly cooked, and no gravy, if made rich with butter, should be eaten by a young child. Never give children

hard, tough, half-cooked meats, of any kind.

Eggs for Children should be boiled slowly and soft. (See Eggs—To Boil).

Vegetables for Children.—For all children rice ought to be cooked in no more water than is necessary to swell it; Apples roasted, or stewed with no more water than is necessary to steam them. Vegetables should be thoroughly well cooked. Potatoes, particularly some kinds, are not easily digested by children; but this may be remedied by mashing them very fine, and seasoning them with salt and a little milk. Peas should be seasoned with mint and salt which will take off the flatulency. If they are old, let them be pulped, as the skins cannot be digested by children's stomachs. Never give them vegetables less stewed than would pulp through a colander. Should the children be flatulent or bilious, a very little curry powder may be given with vegetables with good effect. Turmeric and the warm seeds (not hot peppers) are also particularly useful in such cases.

Fruits for Children.—That fruits are naturally healthful in their season, if rightly taken, no one who believes that the Creator is a kind and beneficent Being can doubt. And yet the use of summer fruits appears often to cause fatal diseases, especially in children. Why is this? Because we do not conform to the natural laws in using this kind of diet. These laws are very simple, and easy to understand. Let the fruit be ripe when you eat it; and eat when you require food. Fruits that have seeds are much more wholesome than the stone fruits. But all fruits are better, for very young children, if baked or cooked in some manner, and eaten with bread. The French always eat bread with raw fruit. Apples and winter

pears are very excellent food for children,—indeed, for almost any person in health,—but best when eaten for breakfast or dinner. If taken late in the evening, fruit often proves injurious. Both apples and pears are often good and nutritious when baked or stewed, and when prepared in this way are especially suitable for those delicate constitutions that cannot bear raw fruit. Much of the fruit gathered when unripe might be rendered fit for food by preserving in sugar.

To prepare Fruit for Children.—A far more wholesome way than in pies or puddings, is to put apples sliced, or plums, currants, gooseberries, &c., into a stone jar, and sprinkle among them as much sugar as necessary. Set the jar in the oven, with a tea-cupful of water to prevent the fruit from burning; or put the jar into a saucepan of water till its contents be perfectly done. Slices of bread or some rice may be put into the jar to eat with the fruit.

Rice Pudding with Fruit.—Into a pint of new milk put two large spoonfuls of rice, well washed; then add two apples, pared and quartered, or a few currants or raisins. Simmer slowly till the rice is very soft, then add one egg beaten to bind it: serve with cream and sugar.

Rice and Apples for Children.—Core as many nice apples as will fill the dish; boil them in light syrup; prepare a quarter of a pound of rice in milk with sugar and salt; pour some of the rice in the dish, put in the apples, and fill up the intervals with rice: bake it in the oven till it is a fine color.

A Nice Apple Cake for Children.—Grate some stale bread, and slice about double the quantity of apples; butter a mold, and line it with sugar paste, and sprinkle in some crumbs, mixed with a little sugar; then lay in

apples, with a few bits of butter over them, and so continue till the dish is full; cover it with crumbs, or prepared rice; season with cinnamon and sugar. Bake it well.

Ripe Currants are excellent food for children. Mash the fruit, sprinkle with sugar, and let them eat freely, taking some good bread with the fruit.

To Make Senna and Manna Palatable.—Take of senna leaves and manna a quarter of an ounce of each, and pour over them a pint of boiling water; when the strength is abstracted, pour the infusion over from a quarter to half-a-pound of prunes and two large tablespoonfuls of West India molasses. Stew the whole slowly until the liquid is nearly absorbed. When cold it can be eaten with bread and butter, without detecting the senna, and is excellent for children when costive.

Apple Water for Invalids.

Wipe, core and pare one large sour apple. Put two teaspoonfuls sugar in the core cavity, and bake until tender. Pour one cup boiling water over the baked apple, let it stand one-half hour, strain, and serve.

Iceland Moss Chocolate— (For the Sick Room).

Iceland moss has been in the highest repute as the most efficacious remedy in incipient pulmonary complaints; combined with chocolate, it will be found a nutritious article of diet, and may be taken as a morning and evening beverage mixed with boiling water and milk.

Flour—How to Know Good.

When flour is genuine or of the best kind, it holds together in a mass when squeezed by the hand, and shows the impressions of the fingers, and even of the marks of the skin, much longer than when it is bad or adulterated; and

the dough made with it is very gluey, ductile, elastic, and easy to be kneaded; and may be elongated, flattened, and drawn in every direction without breaking.

Another.—Adulterated flour will be found to be heavier than pure flour—that is to say, a pint of pure flour would be overbalanced in the scales by a pint of adulterated flour.

Another.—Knead a little between your fingers; if it works soft, sticky, it is poor.

Another.—Put some flour on the table and blow it gently with your breath. If little heaps remain upon the table, resisting the action of your breath, and differing manifestly from the indications given by other portions when blown upon, the substance thus remaining is impure.

Another.—Place a thimbleful in the palm of your hand and rub it gently with the finger. If the flour smooths down, feeling smooth and slippery, it is of an inferior quality. But if the flour rubs rough in the palm, feeling like fine sand, and has an orange tint, purchase confidently.

Another.—Bake a small quantity of the suspected flour (in its dry state) until it is a full brown; then take it and rub it in your hands or on a table, and white particles will be seen if either chalk or plaster-of-Paris should be present in the flour.

Flour—To Restore and Improve Musty.

Carbonate of magnesia, 3 parts; flour, 760 parts. Mix, and use the flour in the usual way. This will not only greatly improve bad flour, but the bread will be much lighter, more wholesome, and keep longer than when alum is used.

Meat—Test of Good.

Good meat is neither of a pale pink color, nor of a deep purple tint; for the

former is a sign of disease, and the latter indicates that the animal has not been duly slaughtered, but has died with the blood in it, or has suffered from acute disease.

Another.—It has the appearance of marble, from the ramifications of little veins of fat among the muscles.

Another.—It should be firm and elastic to the touch, and will scarcely moisten the fingers—bad meat being wet, sodden and flabby, with the fat looking like jelly or wet parchment.

Another.—It should have little odor, and the odor should not be disagreeable; for diseased meat has a sickly, cadaverous smell, and sometimes a smell of physic. This is very discoverable when the meat is cut up and drenched with warm water.

Another.—It must not shrink or waste much in cooking.

Another.—It should not run to water, or become very wet on standing for a day or so, but should, upon the contrary, dry upon the surface.

Another.—When dried at a temperature of 212° or thereabouts, it will not lose more than from 70 to 74 per cent. of its weight, whereas bad meat will often lose as much as 80 per cent. Other properties of a more refined character will also serve for the recognition of bad meat—as that the juice of the flesh is alkaline or neutral to test paper, instead of being distinctly acid, and the muscular fibre, when examined under the microscope, is found to be sodden and ill-defined.

Meat—To Cure.

To one gallon of water add one and a half pounds of salt, half a pound of sugar, half an ounce of salpêtre, half an ounce of potash. In this ratio the pickle to be increased to any quantity desired. Let these be boiled together until all the dirt from the sugar rises

to the top and is skimmed off. Then throw it into a tub to cool, and when cold pour it over your beef or pork, to remain the usual time, say four or five weeks. The meat must be well covered with pickle, and should not be put down for at least two days after killing, during which time it should be slightly sprinkled with powdered saltpetre, which removes all the surface blood, etc., leaving the meat fresh and clean. Some omit boiling the pickle, and find it to answer well; though the operation of boiling purifies the pickle by throwing off the dirt always to be found in salt and sugar. If this recipe is properly tried it will never be abandoned. There is none that surpasses it.

Meat (Fresh)—Preserving.

Place in large earthenware pans, putting clean heavy stones on it, and covering it with skim-milk; the milk will become sour, of course, but may afterward serve as food for pigs, and the meat will be found to have kept its natural primitive freshness, even after eight or ten days. This is a German method, and may answer where the ice house or spring house is wanting, and where the skim-milk is plenty.

Another.—At Monte Video, meat is now preserved in large quantities for export, by a process which is thus described: A pickle is made containing eighty-five per cent. of water, with hydrochloric acid, glycerine, and bisulphite of soda, and in this the meat cut into lumps of from five to fifty pounds weight, is soaked for some days. When taken out, it is dusted over with dry bisulphite of soda, and is closely packed in air-tight boxes, in which it will keep sweet for years, and can be rendered fit for use at any time by soaking in a bath of cold water in which a small quantity of vinegar is mixed.

Another.—According to a recipe recently patented in England, meat of any kind may be preserved in any temperature after it has been soaked for ten minutes in a solution made of the following ingredients, well mixed: One pint of common salt dissolved in four gallons of clear cold water and half a gallon of the bisulphite of calcium solution. It is said that experiments show that meats so prepared will keep for twelve days in a temperature of from 80 to 110 degrees and preserve their odor and flavor unimpaired. By repeating the process meats may be indefinitely preserved, and if it is desired to keep them an unusually long time, a little solution of gelatine or white of an egg may be added to the wash.

Meat (Frozen)—To Keep.

After the meat is frozen, tie in papers and pack in a flour barrel with clean straw, pushing the straw down tightly with a thin lath. Then put the barrel in a box, five or six inches larger than the barrel every way, and fill the space with dry sawdust.

Meats—Basting.

In basting meats do not put salt in the basting. Salt the meat when removed from the oven.

Meats—Frying.

This is one of the worst methods of cooking that can be adopted. It cannot be accomplished without the aid of oil or fat, which beyond question tends to render the meat very indigestible. It is no less injurious to vegetables. As an example of this it may be stated that the potato when fried becomes waxy in its texture, and often produces derangement of the stomach in healthy and vigorous persons.

Cooking—Average Loss by.

It is well to know that 100 lb. of beef, loses 6 lb. in boiling and in bak-

ing, 30 lbs. Mutton, by boiling, 21 lbs. and by roasting, 24 lbs.; or, in another form of statement, a leg of mutton costing, raw, 25 cents, would cost, boiled and prepared for the table, 28½ cents per lb.; boiled fresh beef would, at 15 cents per lb., cost 19⅙ cents; a sirloin of raw beef, at thirty cents, costs, roasted, 42 cents; while a leg of mutton, at 15 cents, would cost roasted, only 22 cents.

Milk—Condensed.

There is no patent for manufacturing condensed milk, and the whole process amounts to a careful evaporation, addition of sugar and sealing up of the article. The evaporation should be conducted in a vacuum, to prevent the milk from becoming brown and acquiring a bitter taste. It is best to stir it constantly, or the skin of coagulated casein at the top will prevent quick evaporation. When sufficiently thick or condensed it is mixed with one-quarter of its weight of granulated sugar, stirred well, filled in tins, and soldered up.

Milk—To Preserve.

Milk becomes sour by the formation of lactic acid, which is rapidly developed at a temperature of 70 to 90 degrees. The best way to preserve milk sweet for domestic purposes, is, to add to it every day a few grains of carbonate of soda per pint, to keep the milk alkaline.

Another.—Put the milk into bottles, then place them in a saucepan with cold water, and gradually raise it to the boiling point; take it from the fire, and instantly cork the bottles, then raise the milk once more to the boiling point for half a minute. Finally let the bottles cool in the water in which they were boiled. Milk thus treated will remain perfectly good for six months.

Another.—To every thirty ounces of unskimmed milk, previously poured in a well-annealed glass bottle, add six grains of bicarbonate of soda. Place the bottle containing the milk, and well corked, for about four hours in a water-bath heated up to 194 degrees F. On being taken out the bottle is varnished over with tar; and in that state the milk will keep sound and sweet for several weeks.

Milk Whey.

Place a small piece of rennet in a eup of hot water for 4 or 5 hours. Pour the water into 2 quarts of new milk, and when the curd appears, strain the whole through a hair sieve into a jug. The whey may be given to a patient either cool or lukewarm.

Milk a Disseminator of Disease.

Cows' milk very readily absorbs infectious germs, and by its agency many diseases such as diphtheria, typhoid, and other fevers, etc., have been widely spread. It is, therefore, a wise precaution, which should be adopted in all families, especially those resident in cities and towns, to boil all milk before it is used by the household. By this simple measure the danger is very considerably lessened.

Facts about Milk.

Cream cannot rise through a great depth of milk. If milk is therefore desired to retain its cream for a time, it should be put into a deep narrow dish, and if it be desired to free it most completely of cream, it should be poured into a broad, flat dish, not much exceeding one inch in depth. The evolution of cream is facilitated by a rise, and retarded by a depression of temperature. In wet and cold weather the milk is less rich than in dry and warm; and on that account more cheese is obtained in cold than in warm, though not in thundery

weather. The season has its effects—the milk in the spring is supposed to be best for calves, in summer it is best suited for cheese, and in autumn, the butter keeping better than that of summer. Cows less frequently milked than others give rich milk, and, consequently much better. The morning's milk is richer than the evening's. The last drawn milk of each milking, at all times and seasons, is richer than the first drawn, which is the poorest.

Cooking Utensils--Caution about.

Cleanliness has been aptly styled the cardinal virtue of cooks. Food is more healthful as well as palatable when cooked in a cleanly manner. Many lives have been lost in consequence of carelessness in using brass, copper, and glazed earthen cooking utensils. The two first should be thoroughly cleansed with salt and hot vinegar before cooking in them, and no oily or acid substance, after being cooked, should be allowed to cool or remain in any of them.

To Clean Knives and Forks.

Wash the blades in warm (but not hot) water, and afterwards rub them lightly over with powdered rottenstone mixed to a paste with a little cold water; then polish them with a clean cloth.

Vinegar—Cider.

The most profitable return from such apples as are made into cider is the further transformation of the juice into vinegar. To do this, the barrels should be completely filled, so that all impurities that "working"—fermenting—throws off will be ejected through the bung-hole. This process should be completed before the barrel is put in the cellar, and when this is done, the purified juice should be drawn out of the original cask and put into others where there is a small amount of old vinegar, which will

amazingly hasten the desired result. If no vinegar can be obtained to "start" the cider, it must remain in a dry cellar six months, and perhaps a year (the longer the better), before it will be fit for the table.

Another.—Save all your apple parings and slice in with them all waste apples and other fruits; keep them in a cool place till you get a pailful, then turn a large plate over them, on which a light weight should be placed, and pour on boiling water till it comes to the top. After they have stood two or three days pour off the liquid, which will be as good cider as much that is offered for sale; strain and pour it into a cask or some other convenient vessel, (anything that can be closely covered will do), and drop in a piece of "mother", or vinegar plant, procured of some one that has good vinegar. If set in a warm place, the vinegar will be fit for use in three or four weeks, when it can be drawn off for use, and the cask filled with cider made from time to time by this process. The parings should be pressed compactly into a tub or pail, and only water enough poured over to come to their surface, otherwise the cider would be so weak as to require the addition of molasses. By having two casks, one to contain the vinegar already made and the other to fill into from time to time, one never need be without good vinegar. The rinsings of preserve kettles, sweetmeat jars, and from honey, also stale beer and old cider, should all be saved for the vinegar cask; only caution should be used that there be sufficient sweetness or body to whatever is poured in, or the vinegar may die from lack of strength.

Another.—A barrel or a cask of new sweet cider, buried so as to be well covered with fresh earth, will turn to sharp, clear, delicious vinegar

in three or four weeks, as good as ever sought affinity with cabbage, pickles, or table sauce, and better than is possible to make by any other process.

Vinegar Plant.

What is popularly known as the vinegar plant is only a form of the "mother of vinegar," which is, again, only a state of common mould. For the manner of obtaining it, we quote the following from the *Farmers' Gazette*.—Leave a little vinegar in a small bottle to become stale (during hot, close weather is best), till a film appears on the surface. If a few fragments of coarse brown sugar be now added, it will somewhat aid its growth; but when the film has attained the thickness of parchment, it is ready for transfer to syrup, where it soon becomes the housewife's normal vinegar plant. Procure a large jar or bottle, and to two quarts of boiling water add half a pound of molasses and half a pound of the commonest brown sugar; stir well together, and when cool transfer the film from the surface of the vinegar to the surface of the syrup; cover up to exclude air, and keep in a warm cupboard. This film will rapidly grow, and form a thick, slippery, gelatinous mass all over the surface of the syrup, and in course of six weeks or so the liquid will be changed to excellent vinegar. The vinegar plant can now be taken and divided into layers, or cut into fragments, each piece of which if placed upon fresh syrup will rapidly grow and change the liquor into the vinegar. The vinegar should be allowed to settle, and be strained before it is used.

Honey (Artificial)—To Make.

Take 5 pounds good common sugar, 2 pounds of water, gradually bring to a boil, skimming well; when cool add 1 pound bees' honey and 4 drops of peppermint. If you desire a better

article use white sugar and $\frac{1}{2}$ pound less water, and one-half pound more honey.

Another.—Good brown sugar 10 lbs., water 1 qt.; old bee bread honey in the comb 2 lbs.; cream of tartar 1 teaspoon; gum arabic 1 oz.; oil of peppermint 3 drops; oil of rose 2 drops. Mix and boil 2 or 3 minutes and have ready 1 qt. more of water in which an egg is put well beaten; pour it in and as it begins to boil, skim well, remove from the fire, and when a little cool, add 2 lbs. of nice bees' honey, and strain.

Another.—Coffee sugar 10 lbs.; water 3 lbs.; cream of tartar 2 oz.; strong vinegar 2 tablespoons; the white of 1 egg well beaten; bees' honey $\frac{1}{2}$ lb.; Lubin's extract of honeysuckle 10 drops. First put the sugar and water into a suitable kettle and place upon the fire; and when lukewarm stir in the cream of tartar, and vinegar; then continue to add the egg; and when the sugar is nearly melted put in the honey and stir until it comes to a boil, take it off, let it stand a few minutes, then strain, adding the extract of honeysuckle last, let stand over night, and it is ready for use.

Another.—Take 10 pounds of Havana sugar, 4 pounds of water, 40 grains of cream tartar, 10 drops essence peppermint, and 3 pounds of honey; first, dissolve the sugar in the water over a slow fire, and take off the scum arising therefrom. Then dissolve the cream tartar in a little warm water, and add, with some stirring; then add the honey, heated to a boiling point; then add the essence of peppermint; stir for a few minutes, and let it stand until cold, when it will be ready for use.

Another.—Dissolve 20 lbs. of coarse sugar in 3 quarts of warm water; stir into it one-fifth of an ounce of cream

of tartar dissolved in a little water, and also five or six pounds of good honey, and half a teaspoonful of good peppermint. Boil the whole slowly, twelve minutes, stirring constantly.

Honey—Liquid.

Put two pounds of the purest white sugar in as much hot water as will dissolve it; take one pound of strained white clover honey—any honey of good flavor will answer—and add it warm to the syrup, thoroughly stirring together. As refined loaf sugar is a pure and inodorous sweet, one pound of honey will give its flavor to two pounds of sugar, and the compound will be free from that smarting taste that pure honey often has, and will usually agree with those who cannot eat the latter with impunity. Any desired flavor can be added to it.

Apricots—Dried.

Thrust out the stones with a wooden skewer, then pare them and roll them in dry powdered lump sugar; afterwards put them into a cold syrup, made with 2 lbs. of lump sugar to $\frac{3}{4}$ of a pint of water, and heat them gradually to the boiling point, turning them frequently. Then pour them into a deep dish, and next day scald them again, adding as much sugar as will dissolve; again let them rest until the next day, when they must be placed on a hair sieve to drain and dry.

The fruit should not be quite ripe. Sometimes the apricots are cut into halves or quarters before preserving, and at other times pickled with the skins on; in the latter case they are gathered sooner, and infused in cold water with some vine leaves; next taken out and gently immersed in fresh water until they turn yellow, and then rubbed with a flannel and some salt to remove the down; they are then again soaked in the pan with the vine leaves, until they turn green-

ish. The best are selected, rubbed dry, and stones extraeted, and boiled in syrup as above described.

Dried Cherries.

Cherries are dried as follows: Put in jars first a layer of fruit, then a layer of sugar, in the proportion of half a pound of sugar to a pound of fruit; let it stand over night; place them to boil, skimming off all seum; let boil ten or fifteen minutes, skim out and spread on dishes to dry in the sun or by the fire, turning frequently until dry; then place on pans in the oven, stirring with the hand often until the heat is too great to bear. They may then be placed in jars with sugar or put away in paper sacks or stone crocks, with a cloth tied over the top, and are an excellent substitute for raisins in pudding or mince pies.

The secret of keeping dried fruit is to exclude the light, and to keep in a dry and cool place. Paper sacks, or a barrel or box lined with paper, are secure against moths. Reheating fruit makes it dark in color and impairs the flavor. Always fill a fruit-can and keep for present use, to avoid opening the large jars often.

Corn (Green)—To Dry.

Clean the silk carefully from the corn. Put it in a steamer, over a kettle of hot water. Steam ten minutes. Then draw a knife through each row of kernels, and scrape out the pulp, leaving the hulls on the cob. Spread on plates and dry carefully without scorching.

Another.—Husk the corn and silk it. Then shave it off with a sharp knife. To six quarts of the shaved corn add a teacup of sugar and stir it all up together. Put it on a pie platter and plates and set in the oven. Let it scald ten minutes; then take it out and put it on a clean tablecloth, and

spread in the sun and let it dry. When dry, put in jar or box to keep.

Currants—To Dry with Sugar.

Take fully ripe currants, stemmed, five pounds, sugar one pound; put into a brass kettle stirring at first, then as the currants boil up to the top, skim them off; boil down the juicy syrup until quite thick and pour it over the currants, mixing well; then place on suitable dishes, and dry them by placing in a low box over which you can place mosquito bar to keep away flies. When properly dried, put in jars and tie paper over them. Put cold water upon them and stew as other fruit for eating or pie-making, adding more sugar if desired.

Fruit—Drying.

When much fruit is dried it is necessary to have a house for the purpose. Small quantities should be so arranged as to be placed near the kitchen fire when taken in at night or during stormy days. Those who have hot-bed sashes, can easily arrange a drying apparatus which will dry rapidly and at the same time keep off insects. A hot-bed frame with a bottom to it, and raised above the ground, makes a capital drying box. The sash should be elevated at one end to allow the moisture to pass off, covering the opening with netting.

Fruit (Dried)—To Protect from Worms.

It is said that dried fruit put away with a little bark sassafras (say a large handful to the bushel), will save for year, unmolested by those troublesome little insects which so often destroy hundreds of bushels in a single season. The remedy is cheap and simple, but we venture to say a good one.

Herbs—To Dry.

They should be gathered in a dry season, cleansed from discolored and

rotten leaves, screened from earth or dust, placed on tables covered with blotting paper and exposed to the sun or the heat of a stove, in a dry, airy place. The quicker they are dried the better as they have less time to ferment or grow moldy; hence they should be spread thin and frequently turned; when dried they should be shaken in a large meshed sieve to get rid of the eggs of any insects. Aromatic herbs ought to be dried quickly with a moderate heat that their odor may not be lost. Cruciferous plants should not be dried, as in that case they lose much of their antiscorbutic qualities. Some persons have proposed to dry herbs in a water bath, but this occasions them, as it were, to be half boiled in their own water.

Parsley—To Dry.

Cut a large basketful of the best looking, curled parsley, pick out faded or dirty leaves, and dry the remainder carefully before a clear fire. At first the leaves will become quite limp, and they must be turned before the fire to expose all parts equally to the heat, until the leaves are dry and brittle, without losing their green color, for if they are allowed to get brown they are spoiled. When dry, rub them to powder between the hands; sift the powder through a coarse sieve, and bottle it for use; it will retain both the color and flavor of green parsley. A large basket of fresh leaves will hardly yield a pint of powder. Never dry it in the sun, or it will lose much of its flavor.

Peaches—To Dry.

Never pare peaches to dry. Let them get mellow enough to be in good eating condition, put them in boiling water for a moment or two, and the skins will come off like a charm. Let them be in the water long enough but no longer. The gain is at least sixfold

—saving of time in removing the skin, great saving of the peach, the part of the peach saved is the best part, less time to stone the peaches, less time to dry them, and better when dried. A whole bushel can be done in a boiler at once, and then the water turned off.

Dried Plums.

Fruits for drying should be perfect and quiteripe. Cut plums in halves and take out the stones. It is best not to pare them. Spread in a single layer on boards, and stand in the hot sun to dry gradually until they turn leather-colored; bring in always before sunset, and never put out in damp or cloudy weather; a piece of mosquito netting will prevent flies from reaching them; when dry, put into paper sacks and hang in a dark, dry, cool place. Cherries, should be stoned before drying. All fruits may be dried in the oven, providing the oven is not sufficiently hot to seorch or scald. This is an excellent way, as the fruit is dried more quickly, and you escape the danger of its being stung by insects.

Pumpkins—Drying.

Take the ripe pumpkins, pare, cut into small pieces, stew soft, mash and strain through a colander, as if for making pies. Spread this pulp on plates in layers not quite an inch thick; dry it down in the stove oven, kept at so low a temperature as not to seorch it. In about a day it will become dry and crisp. The sheets thus made can be stowed away in a dry place, and they are always ready for use for pies or sauce. Soak the pieces over night in a little milk, and they will return to a nice pulp, as delicious as the fresh pumpkin. The quick drying after cooking always prevents any portion from souring as is always the case when the uncooked pieces are dried; the flavor is much better preserved, and the after cooking is saved.

Rhubarb—To Dry.

The best method of drying rhubarb is to strip it of its epidermis. This is a long operation, but both time and expense are spared in the end by the promptness and regularity of the drying. Many cultivators of rhubarb on a large scale have repeated the experiment and have met with the most decisive results.

Hops—To Choose.

When rubbed between the fingers, or on the palm of the hand, good hops will feel glutinous, have a fragrant smell, and develop a fine, yellow dust. The seeds should be ripe, and the leaves full and unbroken, and of a fine brownish-yellow green. Avoid yearlings, unless you can get them in good condition and for two-thirds the price of new hops.

Yeast Cake.

Good-sized potatoes, one dozen; hops, one large handful; yeast three-fourths of a pint; corn meal, a sufficient quantity. Boil the potatoes, after peeling, and rub them through a colander; boil the hops in two quarts of water and strain into the potatoes; then scald sufficient Indian meal to make them the consistence of emptyings, and stir in the yeast and let it rise; then, with unsealded meal, thicken so as to roll out and cut into cakes, drying quickly at first to prevent souring. They keep better, and soak up quicker, than if made with flour.

Yeast Cakes—To Make.

Put a handful of hops in two quarts boiling water; strain the boiling hop water over two pounds of flour and beat it until smooth. While it is warm add two tablespoonfuls of salt and half a teacupful of sugar. When cool, stir in a pint of yeast. After the yeast has become light, stir in as much Indian meal as it will take to roll it out

in cakes and place on a cloth to dry, turning often. At the end of a week they may be put in a bag and should be kept in a dry place. Do not let sour while drying; avoid this by letting draft blow over them the first two days.

Yeast—To Preserve.

Common ale yeast may be kept fresh and fit for use several months by the following method: Put a quantity of it into a close canvas bag, and gently squeeze out the moisture in a screw-press till the remaining matter be as firm and stiff as clay. In this state it may be close-packed up in a tight cask for securing it from the air, and will keep fresh, sound, and fit for use for a long time.

Apples, Raw, for Breakfast.

Select fresh, unspotted apples of good flavor, but not very sour, wash and wipe thoroughly, and arrange tastefully, alone or with other fruit. For serving, use small plates and fruit-knives, to be removed with them. Individual taste must decide whether the fruit should be eaten before or after the heavier part of the breakfast.

Apples and Cream.

A delicious breakfast dish, to be served with the cooked cereal or alone, consists of fresh, mellow, sweet apples, pared and sliced, sprinkled with fine sugar and dressed with cream.

Peaches a la Strawberry.

Ripe peaches cut in small pieces, with soft, mild, eating apples, in the proportion of three peaches to one apple, mixed with sugar and left to stand two or three hours, make excellent mock strawberries.

Fruit Stains—To Remove.

Mix two teaspoonfuls of water and one of spirits of salt, and let the stained part lie in this for a minute, then rinse in cold water. Or wet the stain with ammonia.

Another.—Pour on boiling water, and let stand a few minutes.

Whipped Cream.

Take the whites of a dozen eggs, one quart of cream, half a pint of sherry, ten drops of essence of musk, three drops of essence of orange peel. Whisk into froth and put it in a sieve. Fill glasses with the cream, the froth being poured on top.

Beans—To Keep Fresh for Winter.

Procure a wide-mouthed, stone jar, lay on the bottom of it some freshly pulled, French beans, and over them put a layer of salt; fill the jar up in this manner with alternate layers of beans and salt. The beans need not all be put in at the same time, but they are better if the salt be put on while they are quite fresh. They will keep good all through the winter. When going to use them, steep for some hours in fresh cold water.

Cabbages—To Preserve in Winter.

Sink a barrel in the ground to within an inch or two of the top, cut off the heads and fill the barrel full, put on a board to keep out water, and that is all the covering that is needed.

Cauliflower—To Keep.

They can be kept in a cellar by covering the roots and stalks with earth, till February. Or they may be placed in a trench in the garden, roots down, and covered with earth, close up to the heads; and then cover with hay, or straw, four or five inches thick, placing just enough soil on the straw to keep it in its position. This method does well in the latitude of New York; but in colder climates a thicker covering would be required.

Celery—To Keep.

This may be kept in good condition through the winter in a cool, dry cellar,

by having it set out in earth. When a small quantity only is wanted, take a box and stand the celery up in it, placing a little earth about the roots. The farmers who raise quantities of it often keep it in their old hot-beds, standing it up, and protecting it from frost. There is no vegetable more relished than this, and every person who has a garden should raise enough for his own use if no more.

Corn—To Have Green the Year Round.

Gather it with the husks on, put in the bottom of a clean barrel some salt, proceed and fill the barrel as with pork, a layer of corn, then a layer of salt; when full, put on a large stone for pressure, add a little pickle of salt and water. Set the barrel in a cool place in the cellar, do not let it freeze, and it will keep perfect a year or more. When you wish to use it, take off the husks, soak it twenty hours in cold water, boil it and eat. For this purpose, Stowell's Evergreen is best, but any good sweet corn will do. Used in this way it can be enjoyed, as it is never hurtful.

Fruit and Vegetables—To Take Frost out of.

When a thaw approaches put the frozen articles in cold water, allowing them to remain in it until, by their plump, fair appearance, the frost seems to be out.

Grapes—To Keep.

They must not be too ripe. Take off any imperfect grapes from the bunches. On the bottom of a keg put a layer of bran that has been well dried in an oven, or in the sun. On the bran put a layer of grapes with bran between the branches so that they may not be in contact. Proceed in the same way with alternate layers of grapes and bran, till the keg is full; then close the keg so that no air can enter.

Another.—In a box first lay a paper, then a layer of grapes, selecting the best bunches and removing all imperfect grapes, then another paper, then more grapes, and so on until the box is full; then cover all with several folds of paper or cloth. Nail on the lid, and set in a cool room where it will not freeze. I use small boxes, so as not to disturb more than I want to use in a week or so. Give each bunch plenty of room so they will not crowd, and don't use newspapers. Some seal the stems with sealing wax and wrap each bunch by itself, but I get along without that trouble. The grapes should be looked to several times during the winter. Should any mold or decay, they should be removed and the good ones again repacked. By this means I have had, with my pitcher of cider and basket of apples, my plate of grapes daily, besides distributing some among my friends and the sick of the neighborhood.

Chinese Method.—It consists in cutting a circular piece out of a ripe pumpkin or gourd, making an aperture large enough to admit the hand. The interior is then completely cleaned out the ripe grapes are placed inside, and the cover replaced and pressed in firmly. The pumpkins are then kept in a cool place—and the grapes will be found to retain their freshness for a very long time. We are told that a very careful selection must be made of the pumpkin, the common field pumpkin however, being well adapted for the purpose in question.

Ice—To Preserve.

Put the ice into a deep dish, cover it with a plate, and place the dish on a pillow stuffed with feathers, and cover the top with another pillow carefully, by this means excluding the external air.

Another.—Make two bags of stout, woolen fabric; the outer bag should be made at least two inches wider each way than the inner one. After placing one bag inside the other, stuff feathers between the two, and sew the two bags together at the top. Put a block of ice into a bag of this description, and it will be preserved from melting for nearly a week; when, under exposure, it will melt in less than an hour.

Lard—To Keep from Molding.

It is not likely to mold if properly tried and kept in a cool, dry place; earthen crocks or pans well tinned are good to put lard in for keeping. Lard made from intestinal fat, will not keep so long as leaf fat. It should be soaked for two or three days in salted water, changed each day.

Mushrooms—To Preserve.

The small, open mushrooms suit best. Trim and rub them clean, and put into a stew-pan a quart of the mushrooms, three ounces of butter, two teaspoonfuls of salt, and half a teaspoonful of Cayenne pepper and mace mixed; stew until the mushrooms are tender; take them carefully out and drain them on a sloping dish. When cold, press into small pots, and pour clarified butter over them. Put writing paper over the butter, and on that pour melted suet, which will exclude the air and preserve them for many weeks, if kept in a dry, cool place.

Onions—To Keep.

Gather in fall and remove the tops; then spread upon a barn floor or in any open shed, and allow them to remain there until thoroughly dry. Put into barrels or small bins or boxes, and place in a cool place, and at the approach of cold weather cover with straw or chaff, if there is danger of very severe freezing.

Onions are often injured in winter by keeping them in too warm a place.

They will seldom be injured by frost if kept in the dark, and in tight barrels or boxes, where not subjected to frequent changes of temperature. It is the alternate freezings and thawings that destroy them, and if placed in a position where they will remain frozen all winter, and then thawed out slowly and in a dark place, no considerable injury would result from this apparently harsh treatment. Onions should always be stored in the coolest part of the cellar, or put in chaff and set in the barn or some outhouse.

Peas (Green)—To Preserve.

When full grown, but not old, pick and shell the peas. Lay them on dishes or tins in a cool oven, or before a bright fire; do not heap the peas on the dishes, but merely cover them with peas, stir them frequently, and let them dry very gradually. When hard, let them cool, then pack them in stone jars, cover close, and keep them in a very dry place. When required for use soak them for some hours in cold water, till they look plump before boiling; they are excellent for soup.

Potatoes—Storing.

Potatoes should not be exposed to the sun and light any more than is necessary to dry them after digging them from the hill. Every ten minutes of such exposure, especially in the sun, injures their edible qualities. The flesh is thus rendered soft, yellowish or greenish, and injured in flavor. Dig them when dry, and put them in a dark cellar immediately and keep them there till wanted for use, and there would not be so much fault found about bad quality. This is also a hint to those grocers and marketmen who keep their potatoes in barrels in the sun—that is, if they wish to furnish their customers with a good article.

Potatoes—To Keep from Sprouting.

To keep potatoes intended for the use of the table from sprouting until new potatoes grow, take boiling water, pour into a tub, turn in as many potatoes as the water will entirely cover, then pour off all the water, handle the potatoes carefully, laying up in a dry place on boards, only one layer deep, and see if you do not have good potatoes the year round, without hard strings and watery ends caused by growing.

Potatoes (Sweet)—Storing.

Farmers who store sweet potatoes for winter use should be very careful not to keep them too moist, too warm or too cold. A very good way is get a box large enough for the quantity you have, and then select sand and dry it thoroughly before using; when dry, cover the bottom of your box with the sand to the depth of three inches, and then place one layer of sweet potatoes, but not so close as to lie against each other; then one layer of sand of the same depth, and so on until your box is full; then place it in a room where the temperature will not fall below 40°, nor rise above 60°. Keep it as near 60° as possible. In this way they may be kept until new ones are to be had.

Cheese—Dutch.

This is the curd of sour milk drained from the whey, pressed into balls or molded in small, fancy shapes, and eaten when fresh, or soon after it is made.

The milk is allowed to sour and become loppered or thick, when it is gently heated, which facilitates the separation of the whey. The curds are then gathered up, salted or otherwise, to suit the taste, and pressed in small molds, or formed with the hand into suitable shape, when it is ready for the table, and may be used immediately.

In cool weather when milk does not readily thicken, the sour milk may be put in a suitable vessel set in hot water over the range. The milk is then stirred for a few minutes, when the whey will begin to separate, and it is then removed, and another batch may be treated in the same manner.

Sometimes this kind of cheese is potted and left to decompose, and when it has acquired a strong, villainous smell, it is regarded as most delicious by those who have acquired a taste for eating it in this state. In some markets cottage, or Dutch cheese finds a ready sale, and quite a profit is made by certain butter-makers, in turning their sour milk into this product.

Cheese—French.

The cheese manufactured in the old province of Bresse, now the department of the Ain, is made by boiling the milk, adding a little saffron, taking it off the fire, and putting it in the rennet immediately. The curd is then dried in a cloth, pressed for a few hours, put into a cellar, and salted five or six days after, this latter operation being continued for a month.

Roquefort Cheese.

The celebrated Roquefort cheese, made in the village of that name in the Aveyron, is obtained with a mixture of sheep's and goat's milk; but even in the milking there is a secret—for when the udder appears to yield no more, the maid strikes it repeatedly with the back of her hand, whereby a little more milk is obtained, much richer in butter. This operation, which is apparently harmless, causes the udders to increase in size in course of time. The next reason assigned for the peculiar flavor of the Roquefort cheese is, that when made into cakes it is kept in caverns hollowed out in a calcareous kind of rock which skirts

the village; the temperature of these recesses is kept low by various contrivances, and seldom rises above 4° Cent. (41° Fahr.) The cheese is made with the milk of the morning and of the evening before.

Suet—To Keep.

Suet may be kept for a year thus: Choose the firmest and most free from skin or veins, remove all traces of these, put the suet in the saucepan at some distance from the fire, and let it melt gradually; when melted pour it into a pan of cold spring-water; when hard, wipe it dry, fold it in white paper put it in a linen bag, and keep it in a cool, dry place; when used it must be scraped, and it will make an excellent crust either with or without butter.

Honey—Preservation of.

After the honey has passed from the comb, strain it through a sieve, so as to get out all the wax; gently boil it, and skim off the whitish foam which rises to the surface, and then the honey will become perfectly clear. The vessel for boiling should be earthen, brass or tin. The honey should be put in jars when cool, and tightly covered.

To keep honey in the comb, select combs free from pollen, pack them edgewise in jars or cans, and pour in a sufficient quantity of the boiled and strained honey (as above) to cover the combs. The jars or cans should be tightly tied over with thick cloth or leather. These processes have been in use for twenty years with unvarying success.

Eggs—To Test.

One way to tell good eggs is to put them in a pail of water, and if they are good they will lie on their sides always; if bad, they will stand on their small ends, the large end always uppermost, unless they have been shaken considerably, when they will stand either end up. Therefore, a bad egg can be

told by the way it rests in the water—always up, never on its side. An egg that lies flat is good to eat, and can be depended upon. An ordinary way is to take them into a room moderately dark, and hold them between the eye and a candle or lamp. If the egg be good—that is, if the albumen is still unaffected—the light will shine through with a reddish glow; while, if affected, it will be opaque or dark.

Tripe—To Prepare and Pickle.

First sew it up, after it is turned inside out; be careful to sew it up tight, that no lime gets into it; now have a tub of lime-water, the consistence of good, thick whitewash; let it remain in from ten to twenty minutes, or, until when you take hold of it the dark outside skin will come off; then put it into clean water, changing three or four times to weaken the lime, that the hands be not injured by it; then with a dull knife scrape off all of the dark surface, and continue to soak and scrape several times, which removes all offensive substances and smell. After this let it soak twenty or thirty minutes in two or three hot waters, scraping over each time; then pickle in salt and water twelve hours, and it is ready for cooking; boil from three to four hours, cut in strips to suit, and put it into nice vinegar with the various spices, as desired; renew the vinegar at the expiration of one week, is all that will be required further.

Meat—Strasbourg Potted.

Take three pounds of the rump of beef, cut into small bits, and put it in an earthen jar with a quarter of a pound of butter at the bottom; make a paste of flour and water; cover the jar closely and set it in a pot of boiling water. In two hours take it out, and add one teaspoonful of allspice, the same of pepper, and two of salt; then boil another hour. Let it stand until

cold; pound the meat with a pestle until it is entirely broken up; add to it the liquor in the pot and three large tablespoonfuls of tomato catsup. Press into small pots and cover with melted butter. It will keep two or three months in a cold, dry place, and is a delicious relish for breakfast, tea or lunch.

Molasses.

When molasses is used in cooking, it is a very great improvement to boil and skim it before you use it. It takes out the unpleasant raw taste, and makes it almost as good as sugar.

Where molasses is used much for cooking, it is well to prepare one or two gallons in this way at a time.

Celery—Essence of.

This is prepared by soaking for a fortnight half an ounce of the seeds of celery in a quarter of a pint of brandy. A few drops will flavor a pint of soup or broth equal to a head of celery.

Stuffing.

One cup cracker crumbs, one quarter cup melted butter, one quarter teaspoon salt, one-eighth teaspoon pepper, one-half tablespoon poultry seasoning, one quarter cup boiling water.

BEVERAGES.

Barley Water.

Wash two ounces of pearl barley in cold water, then put it into a clean, enameled pan with a little water, let it boil five minutes and pour off the water. Put it on again with two quarts of fresh water and the peeled rind of one lemon, let it boil gently till reduced to a quart, then strain, and when cold, add the juice of the lemon.

Ginger Beer.

Ten pounds of sugar; nine ounces of lemon juice; one-half a pound of honey; eleven ounces of bruised ginger root; nine gallons of water; three pints of yeast. Boil the ginger half an hour in a gallon of water; then add the rest of the water and the other ingredients, and strain it when cold. Add the white of an egg beaten, and one-half an ounce of essence of lemon. Let it stand four days, then bottle, and it will keep many months.

Another.—Three gallons of cold, spring water, one quart of molasses, one tablespoon of cream of tartar, three tablespoons of ginger, one quart of yeast; mix together in a tub, and stand for five hours. It may then be

bottled, and will be fit for use in one day.

Another.—White sugar, five pounds; lemon juice, one gill; honey, one-fourth pound; ginger, bruised, five ounces; water, four and one-half gallons. Boil the ginger thirty minutes in three quarts of the water; then add the other ingredients, and strain; when cold, put in the white of an egg, well beaten, with one teaspoon of lemon essence—let stand four days and bottle. It will keep for months—much longer than if yeast were used; the honey, however, operates mildly in place of yeast.

Another.—Put two gallons of cold water in a pot upon the fire; add to it two ounces of good ginger bruised, and two pounds of white or brown sugar. Let this come to a boil, and continue boiling for about half an hour. Then skim the liquor and pour into a jar or tub, along with one sliced lemon, and half an ounce of cream of tartar. When nearly cold put in a teaspoonful of yeast, to cause the whole to work. The beer is now made; and after it has worked for two days, strain it and

bottle it for use. Tie down the corks firmly.

Another.—To two pounds of white sugar, two ounces of best Jamaica ginger, well bruised, two ounces of cream of tartar, and the rind of two lemons, add two gallons of boiling water; stir all together till they become lukewarm, toast a slice of bread pour on it two tablespoonfuls of good fresh yeast, and place it to float on the top of the mixture; cover the whole up for twenty-four hours, then strain and bottle it, taking care not to fill the bottles; cork and wire it securely. This quantity will make three dozen bottles, and will be ready for use in three or four days.

Root Beer.

Take three gallons of molasses; add ten gallons of water at 60° Fah. Let this stand two hours, then pour into a barrel, and add powdered or bruised sassafras and wintergreen bark, each one-half pound, bruised sarsaparilla root, one-half pound; yeast, one pint; water enough to fill the barrel, say twenty-five gallons. Ferment for twelve hours and bottle.

Another.—For ten gallons of beer, take three pounds common burdock root, or one ounce essence of sassafras; one-half pound good hops; one pint corn roasted brown. Boil the whole in six gallons of pure water until the strength of the materials is obtained; strain while hot into a keg, adding enough cold water to make ten gallons. When nearly cold, add clean molasses or syrup until palatable—not sickishly sweet. Add also as much fresh yeast as will raise a batch of eight loaves of bread. Place the keg in a cellar or other cool place, and in forty-eight hours you will have a keg of first-rate sparkling root beer.

Another.—For each gallon of water to be used, take hops, burdock, yellow

dock, sarsaparilla, dandelion and spike-nard roots, bruised, of each one-half an ounce; boil about twenty minutes, and strain while hot, add eight or ten drops of oils of spruce and sassafras, mixed in equal proportions, when cool enough not to scald your hand, put in two or three tablespoons of yeast; molasses, three-eighths of a pint, or white sugar one-half pound, gives it about the right sweetness.

Another.—American sarsaparilla, two pounds; spice wood, one-half pound; guaiac chips, one pound; birch bark, one-fourth pound; ginger, one-half ounce; sassafras, four ounces; prickly ash bark, one-half ounce; white mustard, one ounce; hops, one ounce. Boil for twelve hours at a moderate heat with sufficient water, so that the remainder shall measure five gallons, to which add tincture of ginger, eight ounces; oil of wintergreen, one ounce; alcohol, one quart; or sufficient to prevent fermentation.

To make root beer, take of the above decoction, one quart; molasses, eight ounces; water, two and one-half gallons; yeast, four ounces.

The root beer, in warm weather, should be mixed the evening before it is used. It can be kept for use either bottled or drawn by a common beer pump. Most people prefer a small addition of wild cherry bitters or hot drops to the above beer.

Spruce Beer.

Boil a handful of hops, and two of the chips of sassafras root, in ten gallons of water; strain it, and turn on while hot, a gallon of molasses, two spoonfuls of the essence of spruce; two spoonfuls of ginger, and one of powdered allspice. Put it into a cask, and when cold enough, add half a pint of good yeast; stir it well; stop it close; when clear, bottle and cork it.

Another.—For three gallons water put in one quart and one-half pint of molasses, three eggs well beaten, yeast one gill. Into two quarts of the water boiling hot put fifty drops of any oil you wish the flavor of; or mix one ounce each oils sassafras, spruce and wintergreen, then use fifty drops of the mixed oils.

Another.—Boil eight gallons of water, and when in a state of complete ebullition pour it into a beer barrel which contains eight gallons more of cold water; then add sixteen pounds of molasses, with a few tablespoonfuls of the essence of spruce, stirring the whole well together; add half a pint of yeast, and keep it in a temperate situation, with the bung-hole open for two days till the fermentation be abated, when the bung may be put in and the beer bottled off. It is fit to drink in a day or two. If you can get no essence of spruce make a strong decoction of the small twigs and leaves of the spruce firs.

Another.—Take of the essence of spruce half a pint; bruised pimento and ginger, of each four ounces; water, three gallons. Boil five or ten minutes, then strain and add eleven gallons of warm water, a pint of yeast, and six pints of molasses. Allow the mixture to ferment for twenty-four hours.

Another.—Take oil of spruce, sassafras and wintergreen, each forty drops; pour one gallon of boiling water on the oils, then add four gallons of cold water, three pints of molasses, one pint of yeast. Let it stand for two hours, and bottle.

Brose—Athol.

This is a beverage peculiar to the Highlands of Scotland. Honey is dissolved in whisky to the consistency of cream; the drink is then taken with a teaspoon. A quantity sufficient to

fill a wineglass, taken at night, will be found to be of benefit in colds and catarrhs. In preparing Athol Brose oatmeal is occasionally added.

Cider—General Rules for Making.

Always choose perfectly ripe and sound fruit.

Pick the apples by hand. (An active boy with the bag slung over his shoulder, will soon clear a tree. Apples that have lain any time on the ground contract an earthy taste, which will always be found in the cider.)

After sweating, and before being ground, wipe them dry, and if any are found bruised or rotten, put them in a heap by themselves, for an inferior cider to make vinegar.

Always use haircloths, instead of straw to place between the layers of pomace. The straw, when heated, gives a disagreeable taste to the cider.

As the cider runs from the press, let it pass through a hair sieve into a large open vessel, that will hold as much juice as can be expressed in one day. In a day, or sometimes less, the pomace will rise to the top and in a short time, grow very thick; when little white bubbles break through it, draw off the liquor by a spigot placed about three inches from the bottom, so that the lees may be left quietly behind.

The cider must be drawn off into very clean, sweet casks, and closely watched. The moment the white bubbles before mentioned are perceived rising at the bung-hole, rack it again. When the fermentation is completely at an end, fill up the cask with cider, in all respects like that already contained in it, and bung up tight; previous to which a tumbler of sweet oil may be poured into the bung-hole.

Fermentation.—After being made and barreled it should be allowed to ferment until it ac-

quires the desired flavor, for perfectly sweet cider is not desirable. In the mean time clean barrels for its reception should be prepared thus: Some clean strips of rag are dipped into melted sulphur, lighted and hung in the bung-hole and the bung laid loosely on the end of the rag. This is to allow the sulphur vapor to well fill the barrel. Tie up a half pint of mustard seed in a coarse muslin rag and put it into the barrel, then put your cider in. Now add the isinglass which refines the cider but does not help to keep it sweet. This is the old-fashioned way, and will keep cider in the same condition as it went into the barrel, if kept in a cool place, for a year. The sulphur vapor checks the fermentation, and the sulphur in the mustard seed keeps it checked. We hear that professional cider dealers are now using the bi-sulphite of lime instead of the mustard seed and sulphur vapor. It is only another form of using the sulphur, but is more convenient and perhaps more effectual. Another method is to add sugar, one and a half pounds sugar to a gallon of the cider and let it ferment. This makes a fermented, clear, good cider, but sweet. It lasts sweet about six months, if kept in a cool situation. Another good way is to put the cider through a cream separator to clarify it.

Clearness.—Preparatory to bottling cider it should be examined to see whether it be clear and sparkling. If not it should be clarified in a cream separator and left for a fortnight. The night before it is intended to put it into bottles, the bung should be taken out of the cask, and left so until the next day, when it may be bottled, but not corked down till the day after, as, if this be done at once, many of the bottles will burst by keeping. The best corks, and champagne-bottles should

be used, and it is usual to wire and cover the corks with tinfoil, after the manner of champagne. A few bottles may be kept in a warm place to ripen, or a small piece of lump sugar may be put into each bottle before corking, if the cider be wanted for immediate use, or for consumption during the cooler portion of the year, but for warm weather and for long keeping this is inadmissible. The bottled stock should be stored in a cool cellar. When the quality will be greatly improved by age.

Cider—Boiling.

To prepare cider for boiling, the first process is to filter it immediately on coming from the press. This is easiest done by placing some sticks crosswise in the bottom of a barrel—a flour-barrel with a single head is the best—wherein an inch hole has been bored, and covering these sticks with say four inches of clean rye or wheat straw, and then filling the barrel to within a foot of the top with clean sand or coal dust, sand is the best. Pour the cider as it comes from the press into the top of this barrel, drawing it off as soon as it comes out at the bottom, into airtight casks, and let it stand in the cellar until March. Then draw it out with as little exposure to the air as possible, put it into bottles that can be tightly and securely corked, and in two months it will be fit for use.

Cider—To Can.

Cider, if taken when first made, brought to boiling heat, and canned, precisely as fruit is canned, will keep from year to year without any change of taste. Canned up in this way in the fall, it may be kept a half dozen years or longer, as good as when first made. It is better that the cider be settled and poured off from the dregs, and when brought to boiling heat the scum that gathers on the surface taken off;

but the only precaution necessary to preservation of the cider is the sealing of it up air-tight when boiling hot. The juice of other fruit can, no doubt, be preserved in the same way. To all tastes not already corrupted by strong drink, these unfermented juices are very delicious. The juice of the grape is better than wine a century old, and more healthful. Churches believing in literal eating and drinking at the Lord's Supper could in this way avoid the poisonous fermented spirits and drink the pure, unfermented juice of the grape, as was doubtless done by the primitive Christians.

Cider—To Clear.

To clear and improve cider generally, take two quarts of ground horseradish and one pound of thick, grey filtering paper to the barrel, and either shake or stir until the paper has separated into small shreds, and let it stand for twenty-four hours, when the cider may be drawn off by means of a syphon or stop cock. Instead of paper a preparation of wool may be taken which is to be had in the market and which is preferable to paper, as it has simply to be washed with water, when it may be used again.

Cider—Devonshire.

The apples, after being plucked, are left in heaps in the orchard for some time, to complete their ripening, and render them more saccharine. They are then crushed between grooved cylinders, surmounted by a hopper, or in a circular trough, by two vertical edge-wheels of wood moved by a horse; after passing through which they are received into large tubs or sieves, and are then called pomace. They are afterwards laid on the vat in alternate layers of the pomace and clean straw, called reeds. They are then pressed, a little water being occasionally added. The juice passes

through a hair sieve, or similar strainer, and is received in a large vessel, whence it is run into casks or open vats, where everything held in mechanical suspension is deposited. The fermentation is often slow of being developed; though the juice be set in November or December, the working sometimes hardly commences till March. Till this time the cider is sweet; it now becomes pungent and vinous, and is ready to be racked for use. If the fermentation continue, it is usual to rack it again into a clean cask that has been well sulphured out, and to leave behind the head and sediment; or two or three cans of cider are put into a clean cask, and a match of brimstone burned in it; it is then agitated, by which the fermentation of that quantity is completely stopped. The cask is then nearly filled, the fermentation of the whole is checked, and the cider becomes fine. If, on the first operation, the fermentation is not checked, the process of racking is repeated until it becomes so, and is continued from time to time till the cider is in a quiet state and fit for drinking.

Cider—Champagne.

Champagne cider is made as follows: To 100 gals. of good cider put 3 gals. of strained honey, or 24 lbs. of good white sugar. Stir well and set it aside for a week. Clarify the cider with half a gallon of skimmed milk, or $\frac{1}{4}$ lb. of dissolved isinglass, and add 4 gals. of pure spirits. After 2 or 3 days bottle the clear cider, and it will become sparkling.

In order to produce a slow fermentation, the casks containing the fermenting liquor must be bunged up tight. It is a great object to retain much of the carbonic acid in the cider, so as to develop itself after being bottled.

Cherry Cider.

Thirty gals. apple cider, 8 quarts dried black cherries, 2 quarts of dried blueberries, 1 quart of elderberries, 75 lbs. of brown sugar. If you desire to make smaller quantities, proportion the quantities of the ingredients accordingly.

Cider—To Preserve and Keep Sweet.

To one barrel of cider put in 1 lb. of mustard seed, 2 lb. of raisins, and $\frac{1}{4}$ lb. of the sticks (bark) of cinnamon.

Another.—When the cider in the barrel is in a lively fermentation, add as much white sugar as will be equal to a $\frac{1}{4}$ or $\frac{3}{4}$ of a pound to each gallon of cider (according as the apples are sweet or sour), let the fermentation proceed until the liquid has the taste to suit, then add $\frac{1}{4}$ of an ounce of sulphite (not sulphate) of lime to each gallon of cider, shake well, and let it stand three days, and bottle for use. The sulphite should first be dissolved in a quart or so of cider before introducing it into the barrel of cider.

Another.—When fermentation commences in one barrel, draw off the liquor into another one—straining through a flannel cloth. Put into the cider $\frac{3}{4}$ of an ounce of the oil of sassafras, and the same of the oil of wintergreen—well shaken up in a pint of alcohol. But one difficulty is said to pertain to this preparation of cider. It is so palatable that people won't keep it long.

Another.—Much of the excellence of cider depends upon the temperature at which the fermentation is conducted, and is a point greatly overlooked by the manufacturers of this liquor. As soon as pressed from the fruit, it should be strained into sulphured casks and placed in a cool situation where the temperature does not exceed 50 deg. Fah.—if left in the

heating sun much of the sugar is converted into vinegar by the absorption of atmospheric oxygen, and thus the liquor becomes acid and rough.

Another.—To preserve cider the greatest objects are to have it clear when barreled and to keep it cool afterwards. To clarify it many methods have been devised but none are better than passing the cider through a cream separator, thereby removing all the pieces of pulp and obtaining a clear liquid.

Cider—To Keep Sweet and Sweeten when Sour.

To keep cider perfect, take a keg and bore holes in the bottom of it; spread a piece of woollen cloth at the bottom; then fill with clean sand closely packed; draw your cider from a barrel just as fast as it will run through the sand; after this, put it in clean barrels which have had a piece of cotton or linen cloth two by 7 inches dipped in melted sulphur and burned inside of them, thereby absorbing the sulphur fumes (this process will also sweeten sour cider); then keep it in a cellar or room where there is no fire, and add $\frac{1}{2}$ lb. white mustard seed to each barrel. If cider is long made, or souring when you get it, about 1 qt. of hickory ashes (or a little more of other hard wood ashes) stirred into each barrel will sweeten and clarify it nearly equal to rectifying it as above; but if it is not rectified, it must be racked off to get clear of the pomace, as, with this in it, it will sour. Oil or whisky barrels are best to put cider in, or $\frac{1}{2}$ pint sweet oil to a barrel, or a gallon of whisky to a barrel, or both, may be added with decidedly good effects; isinglass, 4 oz. to each barrel, helps to clarify and settle cider that is not going to be rectified.

Cocoa.

For many persons cocoa forms a better beverage than either tea or

coffee, and is considered more nutritious and easy of digestion. Many excellent preparations are manufactured and directions for mixing are given with each package.

Cocoa—To Make.

Boil 2 large spoonfuls of ground cocoa in a quart of water $\frac{3}{4}$ of an hour; skim off the oil, pour in 3 gills of milk, and boil it up again. It is the best way to make it the day before it is used, as the oily substance can be more perfectly removed when the cocoa is cold.

Cocoa Shells.

Put a heaping teacupful to a quart of boiling water. Boil them a great while—say 2 or 3 hours. Scald milk as for coffee. If there is not time enough to boil the shells long before breakfast, it is well to soak them over night and boil them in the same water in the morning.

Coffee—To Make Good.

In order to make good coffee, a practical cook says that the first thing necessary is never to allow an ounce of ground coffee to come into the house. If no one understands the art of roasting coffee, then buy it ready roasted, and try and find a dealer who has not soaked all the essential juices from the coffee before putting it into his oven. If the roasted berry is about twice as large as when in its green state, depend upon it you have been defrauded. Get an earthen pot—you cannot make good coffee or tea in a tin vessel—and put the ground coffee in a clean white flannel bag, and be sure to put enough in, and drop the bag into the pot. Pour on boiling water and let it steep; do not boil it. The coffee will steep in 20 minutes. Never break an egg into coffee, and never fill up with water the second time. Pour on, in the beginning, the amount of water needed.

An ordinary teacupful of ground coffee is sufficient for 3 persons. Use Java, Mocha, or Java and Rio mixed. Follow this recipe, and you will never complain of poor coffee.

Another.—Have a muslin bag, with a wire round the mouth or opening, to fit the top of the coffee-pot. When the coffee is wanted, put this bag into the coffee-pot, putting the wire round the edge, pour boiling water through the muslin into the pot, in order to heat both, then pour it out, and put the newly ground coffee into the bag, allowing a tablespoonful to a breakfastcupful of water. Pour the water boiling over the coffee, letting it run, and add more till the measure of water required has been added. Let it stand near the fire for a minute or two, and serve very hot, with boiled milk in a separate jug, or with cream.

Another.—Warm your coffee-pot and put in two teaspoonfuls of freshly-ground coffee for each half pint required; pour in the boiling water. Then pour out a teacupful and put it back in the coffee-pot. Repeat this, and then stand the pot on the stove, but do not allow it to boil. The broader the bottom and the smaller the top of the vessel, the better the coffee will be.

Coffee—Essence of.

Coffee, 1 part; water, 5 parts. Keep them at a heat of 209 deg. Fahr., in a close vessel for ten minutes, then strain and evaporate at a low temperature in a vacuum, until reduced to one part.

Coffee—Turkish Mode of Making.

The Turkish way of making coffee produces a very different result from that to which we are accustomed. A small conical saucepan, with a long handle, and calculated to hold about two tablespoonfuls of water, is the

vessel used. The fresh roasted berry is pounded, not ground, and about a dessert-spoonful is put into the minute boiler; it is then nearly filled with water, and thrust among the embers. A few seconds suffice to make it boil, and the decoction, grounds and all, is poured out into a small cup, which fits into a brass socket, much like the cup of an acorn, and holding the china cup as that does the acorn itself. The Turks seem to drink this decoction boiling, and swallow the grounds with the liquid. We allow it to remain a minute, in order to leave the sediment at the bottom. It is always taken plain; sugar or cream would be thought to spoil it, and Europeans, after a little practice, are said to prefer it to the clear infusion drunk in France. In every hut these coffee boilers may be seen suspended, and the means for pounding the roasted berry are always at hand.

Coffee—Substitutes for.

Roasted acorn, the chick pea, beans, rye, and other grains; nuts, almonds, and wheaten bread; the dried and roasted roots of turnip, carrot, and dandelion.

Coffee Milk—(For the Sick room).

Boil a dessert-spoonful of ground coffee in nearly a pint of milk a quarter of an hour, then put into it a shaving or two of isingless, and clear it; let it boil a few minutes, and set it by the side of the fire to clarify. This a very fine breakfast beverages; but it should be sweetened with sugar of a good quality.

To Detect Chickory in Ground Coffee.

Put a little of the coffee into a wine-glass with some cold water, shake it up, and the coffee will float but the chicory will sink.

Cordial—Strawberry or Raspberry.

Sugar down the berries over night, using more sugar than you would for the table, about half as much again. In the morning lay them in a hair sieve over the basin; let them remain until evening, so as to thoroughly drain; then put the juice in a thick flannel bag; let it drain all night, being careful not to squeeze it, as that takes out the brightness and clearness. All this should be done in a cool cellar, or it will be apt to sour. Add brandy in proportion of one-third the quantity of juice, and as much more sugar as the taste demands. Bottle it tightly. It will keep six or eight years, and is better at last than at first.

Cream Nectar.

Tartaric acid, 1 ounce; cream of tartar, 1 ounce; white sugar, 1 $\frac{1}{4}$ pounds; water, 1 pint; the whites of two eggs, well beaten; one table-spoonful of wheat flour. Put above articles in a tin dish, heat the mixture—but not to the boiling point—and then add a drop of good oil of lemon, or any other flavor you choose, and then you have the syrup. Directions for using.—Take a glass two-thirds full of water, add 3 table-spoonfuls of the syrup, and as much soda as you can place on a dime. This makes a cool and refreshing drink in hot weather.

Another.—Part 1st; Take one gallon water, 6 lbs. loaf sugar, 6 oz. tartaric acid, gum arabic 1 oz. Part 2nd; 4 table-spoonfuls of flour, the whites of 4 eggs beat finely together; then add $\frac{1}{2}$ pint water; when the first part is blood warm put in the 2d, boil 3 minutes, and it is done. Directions: 3 table-spoonfuls of the syrup to a glass half or two-thirds full of water, add

$\frac{1}{3}$ teaspoonful of carbonate of soda made fine; stir well and drink at your leisure.

Cream Soda.

Loaf sugar 10 lbs., water 3 gals.; warm gradually so as not to burn; good rich cream, 2 quarts; extract vanilla, $1\frac{1}{2}$ ounce; extract nutmeg, $\frac{1}{2}$ ounce; tartaric acid, 4 ounces. Just bring to a boiling heat; for, if you cook it any length of time, it will crystallize; use 4 or 5 spoonfuls of this syrup instead of three, as in other syrups; put $\frac{2}{3}$ teaspoonful of soda to a glass; if used without a fountain. For charged fountains no acid is used.

Currant Ice Water.

Press the juice from ripe currants, strain it, and put a pound of sugar to each pint of juice. Put it into bottles, cork and seal it, and keep it in a cool, dry place. When wanted, mix it with ice water for a drink; or put water with it, make it very sweet, and freeze it. Freezing takes away much of the sweetness. The juices of other acid fruits may be used in the same way.

Grape Juice.

Cover the grapes with cold water and bring to the boiling point; mash and allow them to drain over night; next morning bring this to a boiling point and skim. Put into perfectly clean bottles, cork very tightly and seal immediately.

Effervescent Fruit Drinks.

Very fine drinks are prepared by putting strawberries, raspberries, or blackberries, into good vinegar, and then drawing it off, and adding a new supply of fruit, till enough flavor is secured. Keep the vinegar bottled, and in hot weather use it thus: Dissolve $\frac{1}{2}$ a teaspoonful, or less, of saleratus, or soda, in a tumbler (very little water), till the lumps are all out.

Then fill the tumbler two-thirds full of water, and add the fruit vinegar. If several persons are to drink, put the fruit vinegar into each tumbler, and dissolve the soda in a pitcher, and pour into the tumblers as each person is ready to drink; delay spoils it.

Egg Nog for Invalids.

Beat the white and yolk of an egg separately. Add to the yolk a teaspoonful of sugar and three-quarters of a glass of milk. Put into a glass and add two teaspoonfuls of sherry or brandy, and put on top the white of the egg, beaten stiff; stir quickly together and don't let it stand.

Lemonade.

Almost every one has a favorite method of making lemonade. The following method of preparing lemonade with syrup always gives a delicious drink: Dissolve three pounds of sugar in a quart of cold water; add the yellow peel of six lemons, cut in thin, semi-transparent chips. Let the syrup heat to the boiling point, then let it cool. Meantime, add the juice of six lemons to a quart of cold water. Add it to the syrup. Chill the lemonade after thoroughly mixing the two parts together. Serve it in a pitcher with a bowl of crushed ice. Fill the lemonade glasses nearly one-third full of crushed ice, then fill the glass nearly full with lemonade.

As a change prepare an orangeade instead of lemonade. Make it exactly like lemonade, using rich skinned red Valencia or red California oranges instead of lemons. Sometimes the juice of two lemons is used and four oranges. The skins of six oranges are then used. Add to the orangeade just before chilling it the milk of half a pound of Jordan almonds. Blanch the almonds, pound them to a paste, add half a pint of cold water with the pounded almonds, and con-

tinue to pound them; then in a few minutes add about the same amount of lukewarm water. Mix well and squeeze the mixture through a napkin and add it to the orangeade. Serve in exactly the same way the lemonade was served.

Lemonade—Effervescing.

Take powdered white sugar, 1 pound; bi-carbonate of soda, $\frac{1}{4}$ pound; essence of lemonade, $1\frac{1}{2}$ drachms. Mix and divide it into six dozen papers.

Tartaric or citric acid, 5 ounces. Divided into the same number of papers.

The granulated effervescent powders found in the market are made in the following way:—A clean iron or copper pan is heated over a slow fire, and the mixture of finely pulverized sugar and citric acid put in and well stirred, until it commences to cake, without of course changing its color; the pan is then taken from the fire and the bi-carbonate of soda stirred into the mixture, until it is uniformly distributed through the mass, when the whole is pressed through a coarse sieve, and the granules exposed to the air for a little while to harden. They are then ready for bottling. A teaspoonful of this put in a glass of water will dissolve almost instantaneously, producing a good lemonade.

Lemonade—Italian.

Pare and press 2 doz. lemons; pour the juice on the peels; and let it remain on them all night; in the morning, add 2 lbs. of loaf sugar, a quart of good sherry, and 3 quarts of boiling water. Mix well, add a quart of boiling milk, and strain it through a jelly-bag till clear.

Lemonade—Milk.

The juice of seven lemons, half a pint of sherry, $\frac{3}{4}$ of a pound of white sugar, and a quart of boiling water; mix, and when cold add a pint of

boiling milk; let it stand for some hours, then strain clear through a jelly-bag, and ice. This is always better if made the day before it is required.

Lemonade—Portable.

Mix strained lemon juice with loaf sugar, in the proportion of four large lemons to a pound, or as much as it will hold in solution; grate the rind of the lemons into this, and preserve the mixture in a jar. If this is too sweet, add a little citric acid. Use a tablespoonful to tumbler of water.

Another.—Tartaric acid, one-half ounce; loaf sugar, three ounces; essence of lemon, one-half drachm. Powder the acid and sugar; mix them and pour the essence of lemon upon them, a few drops at a time; when all is mixed, divide into twelve equal parts, and put them in white paper, like powders. When wanted, dissolve one in a tumbler of water, and lemonade will be the result.

Lemon Acid—Pure Crystallized.

Take lemon juice, any quantity. Put it into a vessel of china, glass, or wood, and add finely powdered chalk until the whole of the acid is saturated, noting the exact weight of the dry chalk employed; then collect the precipitate and well wash it with water, and for every ten parts of chalk consumed, add sulphuric acid, $9\frac{1}{2}$ parts; diluted with water, 60 parts. Mix while still warm with the precipitate, and stir well together; let them remain for twelve hours; then decant the clear, wash the white powder with clear water, and mix the two liquors; lastly, strain, evaporate, and crystallize. To purify it, repeat the operation of washing the crystals, dissolving and crystallizing two or three times. Great care must be used in evaporating the solution, for if too much heat should be employed, or

the process carried too far, the acid product will be injured.

Tincture of Lemon Peel.

A very easy and economical way of obtaining and preserving the flavor of lemon peel, is to fill a wide-mouthed pint bottle half full of brandy, or proof spirit; and when you use a lemon pare the rind off very thin, and put it into the brandy, etc.; in a fortnight it will impregnate the spirit with the flavor very strongly.

Lemon Water.

Put 2 or 3 slices of lemon, with a lump of sugar and a spoonful of capillaire, into a covered jug, and pour into it a pint of boiling water. Cover it closely for 2 or 3 hours. It will thus form a very agreeable drink for a feverish patient.

Lemon and Kali, or Sherbet.

Large quantities of this wholesome and refreshing preparation are manufactured and consumed every summer; it is sold in bottles, and also as a beverage, made by dissolving a large teaspoonful in a tumbler two-thirds filled with water. The ingredients are—ground white sugar, half-a-pound; tartaric acid and carbonate of soda of each a quarter of a pound; essence of lemon, forty drops. All the powders should be well dried; add the essence to the sugar, then the other powders; stir all together, and mix by passing through a hair sieve. Must be kept in tightly-corked bottles, into which a damp spoon must not be inserted. The sugar must be very finely pulverized.

Mead.

The following is a good receipt for mead:—On twenty pounds of honey pour five gallons of boiling water; boil, and remove the scum as it rises; add one ounce of best hops, and boil for ten minutes; then put the liquor

into a tub to cool; when all but cold add a little yeast spread upon a slice of toasted bread; let it stand in a warm room. When fermentation is finished, bung it down, leaving a peg-hole which can afterwards be closed, and in less than a year it will be fit to bottle.

Mead—Sarsaparilla.

One pound of Spanish sarsaparilla; boil 5 hours, so as to strain off 2 gallons; add 16 pounds of sugar, and 10 oz. of tartaric acid. Half a wine-glass of syrup to half pint tumbler of water, and one half teaspoonful of soda water, is a fair proportion for a drink.

Metheglin.

Mix one and a half barrels of water with as much honey as will cause an egg to rise a little above the water; then boil the mixture to one barrel, skimming off the surface. It will be a fine red or wine color, and clear; then remove from the fire, and when cold, put it into a barrel, leaving the bung-hole open for several days, until fermentation be over; then stop it close, and put into a cold cellar.

Punch.

Water, 3 gals.; tartaric acid, 4 oz. or to taste; lump sugar, to sweeten; brandy, 3 pints; rum, 3 pints. The peels of three lemons grated, essence of lemon to flavor; rub the essence with a little lump sugar in a mortar, adding a little of the spirit.

Milk Punch.

Yellow rinds of 2 dozen lemons; steep two days in two quarts of brandy; add spirits, 3 qts.; hot water, 2 qts.; lemon juice, 1 qt.; loaf sugar, 4 lbs.; boiling milk, 2 qts.; 2 nutmegs grated; mix, and in two hours strain through wool.

Sherbet.

Boil in 3 pints of water 6 or 8 stalks of green rhubarb, and 4 oz. of raisins or figs; when the water has boiled about half an hour, strain it, and mix it with a teaspoonful of rose-water, and orange or lemon syrup to the taste. Drink it cold.

Sherbet—Persian.

Pulverized sugar 1 lb.; super-carbonate of soda 4 ounces; tartaric acid 3 oz.; put all the articles into the stove oven when moderately warm, being separate, upon paper or plates; let them remain sufficiently long to dry out all dampness absorbed from the air, then rub about 40 drops of lemon oil, (or if preferred any other flavored oil) thoroughly with the sugar in a mortar—wedgewood is the best—then add the soda and acid, and continue the rubbing until all are thoroughly mixed.

Veal Sherbet.

Wash a good knuckle of veal, and put it to boil in 9 pints of water. Let it boil until reduced to 2 pints. Run it through a fine sieve, and when nearly cold, add to it 2 pints of clarified syrup, and 1½ pints of clear lemon juice. Mix well, and serve as refreshment. It will be found very nutritious, as well as pleasant.

Summer Drinks.

The first, the best, because the safest for laborers, invalids, the sedentary, for all classes, at all times of the day and night, is half a glass at a time, repeated in ten minutes if desired, of common cold water, at the temperature of the spring or well, or reservoir, or cistern. Ice water is more palatable, but very often kills.

Any drinks which contain alcohol, even cider, root beer, or domestic cordials, are positively injurious, because the atom of alcohol, by using the strength of the next minute for

the present, leaves the system that next minute just that much weaker than it would have been had not that atom of alcohol been taken; this is the case, because that atom of alcohol has not one particle of nutriment, hence, cannot supply the system with one single atom of strength.

If anything is added to the summer drink, it should contain some nutriment, so as to strengthen the body, as well as to dilute the blood for purposes of a more easy flow through the system, as any one knows that the thinner the fluid is, the more easily does it flow. Some of the more nutritious and safe drinks are given below, especially for those who drink in the sun of summer, all to be taken at the natural temperature of the shadiest spot in the locality.

To any of them ice may be added, but it is a luxurious, not a beneficial ingredient, nor a safe one.

1. Buttermilk.
2. A pint of molasses to a gallon of water.
3. A lemon to a half a gallon of water, and a teacupful of molasses, or as much sugar.
4. Vinegar, sugar and water are substitutes, but the vinegar is not a natural acid, contains free alcohol, hence is not as safe or healthful.
5. A thin gruel made of corn or oats is strengthening.
6. A pint of grapes, currants, or garden berries to a half gallon of water is agreeable.

Cold water applied to the head is very refreshing to harvesters. Wading in water abates thirst. Persons cast away at sea will suffer less from thirst, if the clothing is kept wringing wet with salt water. A piece of silk fitted in the hat is a great protection to the head against sun heat; it is an absolute protection if one side is well covered with gold leaf. As there is always a space between the top of the

head and crown of the hat, hatters should practice this idea.

Tea—To Make.

Scald the teapot and empty it, then put the tea in, allowing one teaspoonful for each person with an extra one "for the pot." Pour over it as much boiling water as will be required; let it stand for a few minutes before using. Soft water is the best, and should be freshly boiled, as water that has been boiled several times will not draw the strength of tea properly. Some teapots are now fitted with a perforated cup to contain the tea leaves and enable them to be removed after infusion.

Another Method.—Put in the teapot as much water as necessary for the first cups; put the tea on it as in brewing, and close the lid as quickly as possible. Let it stand three minutes and a half, or, if the quantity be large, four minutes, then fill the cups. By this method, the aroma is preserved instead of escaping with the steam, as it does when the water is poured on the tea.

Another.—The best way to make tea is by pouring a little boiling water on the leaves, and after they have become thoroughly saturated, which requires 1 to 2 minutes, by pouring it off again. This water contains most of the tannic acid, and the acrid and disagreeable principles of the tea, without depriving it of its flavor or strength. Now pour sufficient hot water over the leaves, and let them infuse for 10 or 15 minutes, when the beverage will be ready for use. This scalding with hot water is quite necessary with inferior tea, in which case boiling the leaves must be especially avoided.

Tea—Healthful Substitutes for.

The first leaves of the currant bush dried on tin cannot be known from

green tea. Good meadow hay—fourth ounce to each person—infused in boiling water, is an aromatic, anti-bilious, nourishing and soothing narcotic to the nerves at all times; it promotes digestion and creates appetite. The unfolded petals of the red rose, dried, 5 parts; rosemary leaves, 1 part, and balm leaves, 2 parts, mixed, is also excellent. This far excels any imported tea, and sells at 75 cents per lb., and 1 lb. will last as long as 2 lbs. of common tea. The young leaves of the pea plant, or the young leaves and flowers of the common strawberry, dried in the air out of the sun, furnish delectable draughts when infused and taken with cream and sugar like tea.

Tea—Beef.

Take 1 $\frac{1}{2}$ lbs. of the best steak; cut it into very small pieces, and put them into an earthenware jar, with enough cold water to cover the meat; tie the top of the jar on, and put it into a saucepan full of hot water; place the saucepan on the fire, and allow it to boil for 3 hours, by which time all the goodness of the meat will be extracted. This is the pure essence of beef.

Camomile Tea.

One ounce of the flowers to a quart of water boiling. Simmer for fifteen minutes and strain. Emetic when taken warm; tonic when cold. Dose, from a wineglassful to a breakfast cup. Dried orange peel added to camomile flowers, in the proportion of half the quantity of the flowers, improves the tonic.

Toast-Water.

Cut a slice off a stale loaf, about twice as thick as toast is usually cut. Toast it carefully until it is deep brown all over, but not blackened or burnt; lay it in the bottom of a jug with a thin slice of lemon peel; fill

the jug with boiling water, and let it stand till cold.

Blackberry Wine.

Gather the fruit when ripe on a dry day. Put into a vessel, with the head out, and a tap fitted near the bottom; pour on boiling water to cover it. Mash the berries with your hands, and let them stand covered till the pulp rises to the top and forms a crust, in three or four days. Then draw off the fluid into another vessel, and to every gallon add one pound of sugar; mix well, and put into a cask to work for a week or ten days, and throw off any remaining lees, keeping the cask well filled, particularly at the commencement. When the working has ceased, bung down; after six to twelve months it may be bottled.

Currant Wine.

The currants should be fully ripe when picked; put them into a large tub in which they should remain a day or two; then crush with the hands, unless you have a small patent wine-press, in which they should not be pressed too much, or the stems will be bruised, and impart a disagreeable taste to the juice. If the hands are used, put the crushed fruit, after the juice has been poured off, in a cloth or sack and press out the remaining juice. Put the juice back into the tub after cleansing it, where it should remain about three days, until the first stages of fermentation are over, and removing once or twice a day the scum copiously arising to the top. Then put the juice in a vessel—a demijohn, keg, or barrel—of a size to suit the quantity made, and to each quart of juice add 3 lbs. of the best yellow sugar, and soft water sufficient to make a gallon.

Thus, ten quarts of juice, and 30 lbs. of sugar will give you 10 gals. of wine, and so on in proportion. Those

who do not like sweet wine can reduce the quantity of sugar to two and a half, or who wish it very sweet, raise to three and a half pounds per gallon.

The vessel must be full, and the bung or stopper left off until fermentation ceases, which will be in 12 or 15 days. Meanwhile, the cask must be filled up daily with currant juice left over, as fermentation throws out the impure matter. When fermentation ceases, rack the wine off carefully, either from the spigot or by a syphon, and keep running all the time. Cleanse the cask thoroughly with boiling water, then return the wine, bung up tightly, and let it stand 4 or 5 months, when it will be fit to drink, and can be bottled if desired.

All the vessels, casks, etc., should be perfectly sweet, and the whole operation should be done with an eye to cleanliness. In such event, every drop of brandy or other spirituous liquors added will detract from the flavor of the wine, and will not, in the least degree, increase its keeping qualities. Currant wine made in this way will keep for an age.

Sweet Wine from Ripe Currants.

The fruit is gathered when quite ripe, and the stalks being carefully picked out, it is bruised in the hands, and then strained through a canvas bag into a ten-gallon cask. Forty pounds of fruit, thirty of sugar, and a quarter of good tartar are allowed; the materials having remained some hours in the tub in which it was mixed, it is removed to the cask, the bung-hole covered with a tile, and the cask is stirred every other day for ten days, and filled up every day as the fluid wastes. The fermentation may continue from three to six weeks. When it has subsided, the wine is racked into a cask, in which matches dipped in sulphur have been burned, or in

which a little of the sulphate of potash, or of oxymuriate of potash has been put. It should be again racked and fined in March, when the wine is completed, and may be bottled, or allowed to remain in the cask.

Elderberry Wine.

Gather the berries ripe and dry, pick them, bruise them with your hands, and strain them. Set the liquor by in glazed earthen vessels for twelve hours, to settle; put to every pint of juice a pint and a half of water, and to every gallon of this liquor three pounds of good moist sugar; set it in a kettle over the fire, and when it is ready to boil, clarify it with the whites of four eggs; let it boil one hour, and when it is almost cold, work it with strong ale yeast, and put it in a cask, filling the vessel from time to time with the same liquor, saved on purpose, as it sinks by working. In a month's time, if the vessel holds about eight gallons, it will be fine and fit to bottle, and

after bottling, will be fit to drink in twelve months.

Wine from Mixed Fruit.

The three varieties of currants may be used in the largest proportions, and being nicely picked from the stalks, they are allowed just to boil in as much water as to prevent their burning. Of raspberries, strawberries, and cherries (black-heart is the best), equal quantities may be allowed; they are infused with a little water. Gooseberries may be used to advantage, but must be prepared separately; more powerful bruising in an equal quantity of water, and straining through a canvas bag, the other fruits being also strained. To each gallon of juice thus obtained four pounds of loaf sugar and half an ounce of crude tartar are allowed. When the material has stood some hours in the tub in which it was mixed, it is removed to the cask, and managed as currant wine.

HINTS TO HOUSEKEEPERS.

Cooking—Measures of Capacity for.

Four even teaspoonfuls liquid equal one even tablespoonful.

Three even teaspoonfuls of dry material equal one even tablespoonful.

Sixteen tablespoonfuls liquid equal one cupful.

Twelve tablespoonfuls dry material equal one cupful.

Two cupfuls equal one pint.

Four cupfuls equal one quart.

Four cupfuls flour equal one quart or one pound.

Two cupfuls solid butter equal one pound.

Two cupfuls granulated sugar equal one pound.

Two and one-half cupfuls powdered sugar equal one pound.

One pint milk or water equals one pound.

One dozen eggs should weigh one and one-half pounds.

Skim-milk is heavier than whole milk, and cream is lighter than either, while pure milk is three per cent. heavier than water.

Cooking—Valuable Table of Proportions in.

The following table of proportions is also valuable. Use:

One teaspoonful soda to one cupful molasses.

One teaspoonful soda to one pint sour milk.

Three teaspoonfuls baking powder to one quart flour.

One-half cupful of yeast or one-quarter cake compressed yeast to one pint liquid.

One teaspoonful extract to one loaf plain cake.

One teaspoonful salt to two quarts flour.

One teaspoonful salt to one quart soup.

One scant cupful of liquid to two full cupfuls of flour for bread.

One scant cupful of liquid to two full cupfuls of flour for muffins.

One scant cupful of liquid to one full cupful of flour for batters.

One quart water to each pound of meat and bone for soup stock.

Household Weights and Measures.

Wheat flour weighs one pound to a quart. Indian meal, one pound two ounces to a quart. - Butter, when soft, one pound to a quart. Loaf sugar, broken, one pound to a quart. White sugar, powdered, one pound, one ounce, to a quart.

Cooking Materials—Comparative Cost of.

1 cup of flour or meal.	\$0.01	1 pound of spaghetti.	\$0.16
1 cup of sugar. . . . .	.03	1 pound of corn-starch. . . . .	.10
1 cup of butter.	15 to .20	1 can of tomatoes. . . . .	.15
1 egg. . . . .	.03	1 can of salmon. . . . .	.18
1 cup of molasses. . . . .	.05	1 can of lobster. . . . .	.15
1 cup of milk. . . . .	.02	1 can of deviled ham and tongue. . . . .	.30
1 tablespoonful of wine. . . . .	.02	1 tumbler of jelly. . . . .	.35
1 tablespoonful of brandy. . . . .	.04	1 jar of marmalade. . . . .	.25
1 teaspoonful of vanilla. . . . .	.02	1 pound of tea. . . . .	.75
1 teaspoonful of spice. . . . .	.02	1 pound of coffee. . . . .	.38
1 teaspoonful of soda, and 2 teaspoonfuls of cream-tartar. . . . .	.02	1 pound of chocolate. . . . .	.40
1 tablespoonful of butter. . . . .	.03	¼ pound of nutmeg. . . . .	.32
Butter size of an egg. . . . .	.05	¼ pound of mace. . . . .	.60
1 tablespoonful of olive oil. . . . .	.02	¼ pound of cloves, cassia. . . . .	.15
2 tablespoons of coffee. . . . .	.05	¼ ginger. . . . .	.10
2 teaspoonfuls of tea. . . . .	.01	¼ pound of mustard. . . . .	.12
1 quart of milkman's cream. . . . .	.25	¼ pound herbs, ground. . . . .	.10
1 quart of Deerfoot cream. . . . .	.60	Package of whole herbs. . . . .	.08
1 box of gelatine. . . . .	.16	1 pound of cheese. . . . .	.18
1 lemon. . . . .	.02	1 pound of Parmesan cheese. . . . .	.50
1 orange. . . . .	.03	1 peck of potatoes. . . . .	.25
1 pound of raisins. . . . .	.18	1 peck of apples. . . . .	.50
1 pound of currants. . . . .	.10	1 quart of onions. . . . .	.10
1 pound of citron. . . . .	.18	1 carrot. . . . .	.02
1 pound of crackers. . . . .	.10	1 turnip. . . . .	.05
1 pound of tapioca. . . . .	.07	1 bunch of celery. . . . .	.20
1 pound of rice. . . . .	.09	1 handful of parsley. . . . .	.05
1 pound of macaroni. . . . .	.18	1 bunch of watercresses. . . . .	.05
		1 head of lettuce. . . . .	.10

These prices are for the best materials, and are estimated for the season, from October to June, when butter and eggs are higher than during the summer, and for Eastern markets, which vary greatly from the prices in other parts of the United States.

Comparative Cost of Meat and Game.

Shin of beef,	3 to 6	cts. per lb.	Lamb, leg,	14 to 30	cts per lb.
Middle cut of shin,	7 to 10	" "	Lamb, chops,	15 to 40	" "
Lower part of round,	13 to 15	" "	Lamb, fore quarter,	10 to 25	" "
Vein,	20 to 25	" "	Veal, knuckle,	12 to 17	" "
Top of round,	20 to 25	" "	Veal, cutlet,	22 to 28	" "
Aitch bone,	8 to 10	" "	Veal, breast,	9 to 14	" "
Face of rump,	17 to 22	" "	Sweetbreads,	25 to 70	" whole
Middle, "	25 to 28	" "	Calfs liver,	25 to 70	" "
Back, "	22 to 30	" "	Calf's heart,	5 to 8	" each.
Sirloin,	28 to 33	" "	Calf's head,	25 to 60	" "
Whole tenderloin,	75 c. to \$1.00	" "	Fresh pork,	9 to 15	" per lb.
Small "	30 to 45	cts. "	Salt pork,	11 to 15	" "
Tip of sirloin,	22 to 30	" "	Bacon, bag,	17 to 20	" "
First cut of rib	17 to 25	" "	Bacon, slices,	15 to 18	" "
Second cut of rib,	15 to 20	" "	Ham, bag,	17 to 20	" "
Chuck rib,	7 to 14	" "	Ham, sliced,	20 to 25	" "
Second cut, rib corned,	12 to 15	" "	Lard,	11 to 15	" "
Brisket,	8 to 12	" "	Leaf lard,	10 to 15	" "
Boneless brisket,	15	" "	Sausage,	12 to 20	" "
Flank,	6 to 11	" "	Turkeys,	20 to 35	" "
Liver,	10 to 12	" "	Fowl,	12 to 30	" "
Tripe, plain,	6 to 18	" "	Chickens,	18 to 75	" "
Tripe, honey-comb,	15	" "	Ducks, wild,	25 c. to \$1.50	each.
Heart,	3 to 10	" "	Ducks, tame,	20 to 37	cts. per lb.
Suet,	7 to 12	" "	Ducks, Canvas-back,	\$1.50 to \$2.00	each.
Mutton, leg,	12 to 20	" "	Grouse,	75 c. to \$1.25	"
Mutton, loin,	14 to 20	" "	Partridge,	75 c. to \$1.25	"
Mutton, saddle,	15 to 20	" "	Pigeon, wild,	75 c. to \$2.00	per d.
Mutton, chops,	15 to 25	" "	Pigeon, tame,	12½ to 25	cts. each
Mutton, fore quarter,	8 to 12	" "	Squab,	\$2.50 to \$4.50	per d.
Mutton, neck,	6 to 9	" "	Quail,	\$1.50 to \$3.00	per d.

Adulteration of Foods.

Bread.—The chief adulteration of bread is alum. This is added to give the bread a pure white color, which is supposed to be an advantage, thus enabling the baker to use inferior or damaged flour. The presence of alum can be detected by soaking a piece of bread in an ammoniacal tincture of logwood. If alum be present the bread will be turned blue, whereas pure bread will remain pink.

Recent investigations have proved that the presence of alum is extremely injurious, especially to children, affecting the coats of the stomach and impairing the digestion. Other substances stated to be used in adulterating bread are borax, sulphate of copper, sulphate of zinc, carbonate of magnesia, chalk, flour of rice, and bran, and potatoes.

Butter is made heavy by water being beaten up with it. Cheap samples are sometimes adulterated with other fats and grease, which however require an experienced analyst to detect.

Butterine and Margarine are made of animal fat melted, the top layer being taken off and mixed with oil. This is washed in milk, salted, and made up to imitate butter.

Cayenne Pepper.—The Cayenne of commerce is adulterated with brick-dust, red wood dust, cochineal, vermillion, and red lead. The last two are highly injurious. These can be detected by any one possessing a good microscope. The best way to avoid the impurities is to purchase the capsicums or chillies, pounding them with a pestle and mortar, and rubbing through a sieve in small quantities as required. The pepper is far better flavored when fresh ground.

Chocolate and Cocoa.—Those who prefer the pure cocoa can obtain the "nibs," or more properly "beans," and grind them, but many prefer the soluble cocoa which is simply cocoa modified by admixture with less stimulating substances, such as sugar, arrowroot, and other starchy matters.

Coffee is adulterated with roasted beans, peas and acorns; but chiefly with chickory. Have your own mill, buy the roasted beans from a respectable grocer, ascertain his roasting-day, and always buy from a fresh roast. If you like the flavor of chickory, purchase it separately, and add to taste. Chickory in small quantities is not injurious, but you need not pay the coffee price for it. Grind your coffee, and mix it with chickory for yourself.

Honey.—A great portion of so-called honey is merely starch (sugar or glucose) mixed with a little real honey.

Milk is "adulterated" by skimming off part of the cream, also by the addition of water.

Mustard is largely adulterated with flour and turmeric; as, however, mustard is usually sold in tins it is easy to obtain it pure.

Oatmeal is usually adulterated with barley-flour to give it a whiter appearance.

Pepper is adulterated with inferior grain, husks of weeds, sand, rice-flour, sago, linseed, and even dust of a variety of descriptions. Have your own pepper-mill, purchase the seed whole, and grind for yourself. You will then obtain the pure article at a moderate cost.

Sausages.—The most offensive of all adulterations are found in these savory morsels. Horseflesh, diseased animals, and odds and ends of every description appear in the tempting guise of "sausages." To escape this evil, make your own sausages by the aid of the sausage machine, which will enable you to add many savory morsels to the attractions of your table. The same machine may be used for chopping vegetables, which it will do to such perfection that they will perfectly dissolve in soups and stews, and afford most delicious made-dishes. And in this you will soon save the cost of the machine.

Tea.—Almost the only form which adulteration now takes is in the "faced tea." This is black tea, to which an improved appearance has been imparted by means of indigo, French chalk, plumbago, etc.

Vinegar is principally adulterated with water, or sulphuric acid.

Water.—This, perhaps, is more often adulterated than any other article of consumption. As a rule the water supplied by the water works of large towns

is exceedingly pure, but the adulteration chiefly rests with the consumer or householder, in not keeping the cisterns clean; dust, soot, and even dead mice, cockroaches, etc., being allowed to contaminate the water; also by permitting the overflow pipe to be connected with the soil pipe, or drain, whence the water absorbs poisonous gases. The overflow pipe should in all cases be entirely disconnected with all drains. The cisterns should, if possible, have a cover, and be cleaned out thoroughly at least every three months. In places where the water is drawn from wells great care should be taken that the well cannot be contaminated by any drain or cesspool leaking into it. Many cases of serious illness, notably diptheria, have been traced to this cause. When there is the least reason to doubt the purity of the well, all the water for drinking purposes should be boiled before using, and no time should be lost in having it examined by an experienced analyst. All water that is used for drinking should be first filtered through a reliable filter. Small glass filters for the table can now be obtained at a small cost.

Other Evils Besides Adulterations.

The butcher cannot adulterate the beef and the mutton, but he can send home short weight; and in casting up a bill, he can make mistakes in reckoning the odd ounces; and the baker, besides putting alum into the bread, to make it white and retain water, can send home deficient weight; the same with the grocer and the coal merchant; and the salesman can slip his scissiors on the wrong side of his finger, and make a yard contain only thirty-three inches. We don't mean to say that they do this, nor do we mean to say that they don't. We argue, that people ought to possess the means of ascertaining

who among the shopkeepers are honest and who are not; then the just would meet with justice, and the unjust would suffer for their own sins.

Nutrimment Contained in Various Foods.

Bread contains eighty nutritious parts in 100; meal, thirty-four in 100; French beans, ninety-two in 100; common beans, eighty-nine in 100; peas, ninety-three in 100; lentils, ninety-four in 100; cabbages and turnips, the most aqueous of all the vegetables compared, produce only eight pounds of solid matter in 100 pounds; carrots and spinach produce fourteen in the same quantity; while 100 pounds of potatoes contain twenty-five pounds of dry substance. From a general estimate it appears, that one pound of good bread is equal to two and a half or three pounds of potatoes; that seventy-five pounds of bread and thirty of meat may be substituted for 300 pounds of potatoes. The other substances bear the following proportions: four parts of cabbage to one of potatoes; three parts of turnips to one of potatoes; two parts of carrots and spinach to one of potatoes; and about three parts and a half of potatoes to one of rice, lentils, beans, French beans and dry peas.

Utility of Fruit.

Instead of standing in any fear of a generous consumption of ripe fruits, we regard them as conducive to health. No one ever lived longer or freer from disease by discarding the fruits of the land in which he finds a home. On the contrary, they are necessary to the preservation of health, and are therefore designed to make their appearance at the very time when the condition of the body, operated upon by deteriorating causes not always understood, requires their renovative influences.

Blackberries are very beneficial in cases of dysentery. The berries are healthful eating. Tea made of the roots and leaves is good; and syrup made from the berries, excellent.

Food Questions.

Why does the marbled appearance of fat in meat indicate that it is young and tender? Because in young animals fat is dispersed through the muscles, but in old animals it is laid in masses on the outside of the flesh.

Why is some flesh white and other flesh red? White flesh contains a larger proportion of albumen (similar to the white of an egg) than that which is red. The amount of blood retained in the flesh also influences its color.

Why are raw oysters more wholesome than those that are cooked? When cooked they are partly deprived of salt water, which promotes their digestion; their albumen also becomes hard (like hard-boiled eggs).

Why have some oysters a green tinge? This has been erroneously attributed to the effects of copper; but it arises from the oyster feeding upon small green seaweeds, which grow where such oysters are found.

Why is cabbage rendered more wholesome by being boiled in two waters? Because cabbages contain an oil, which is apt to produce bad effects, and prevents some persons from eating "green" vegetables. When boiled in two waters, the first boiling carries off the greater part of this oil.

Why are salt and soda used in cooking greens? Because salt makes the water hotter and gives a better taste to the greens, and the soda, by extracting the oil from the greens, gives them a good color.

Why should horse-radish be scraped for the table just before it is required? Because the peculiar oil of horseradish is very volatile; it quickly

evaporates, and leaves the vegetable substance dry and insipid.

Why is apple sauce eaten with pork and goose? Because it is slightly laxative, and therefore tends to counteract the effects of rich and stimulating meats. The acid of the apples also neutralizes the oily nature of the fat, and prevents biliousness.

Why does milk turn sour during thunderstorms? Because in an electric condition of the atmosphere ozone is generated. Ozone is oxygen in a state of great intensity; and oxygen is a general acidifier of many organic substances. Milk may be prevented from becoming sour by boiling it, or by bringing it nearly to boiling point, for, as the old proverb says, "Milk boiled is milk spoiled." Heating the milk expels the oxygen.

Why does the churning of cream or milk produce butter? Because the action of stirring, together with a moderate degree of warmth, causes the cells in which the butter is confined to burst; the disengaged fat collects in flakes, and ultimately coheres in large masses.

What is the blue mold which appears sometimes upon cheese? It is a species of fungus, or minute vegetable, which may be distinctly seen when examined by a magnifying glass.

Why are some of the limbs of birds more tender than others? The tenderness or toughness of flesh is determined by the amount of exercise the muscles have undergone. Hence, the wing of a bird that chiefly walks, and the leg of a bird that chiefly flies, are the most tender.

Why does tea frequently cure headache? Because, by its stimulant action on the general circulation, in which the brain participates, the nervous congestions are overcome.

Why are the clothes of smooth and shining surfaces best adapted for hot weather? Because they reflect or turn back the rays of the sun, which are thus prevented from penetrating them.

Why is loose clothing warmer than tight articles of dress? Because the loose dress encloses a stratum of warm air which the tight dress shuts out; for the same reason, woolen articles, though not warmer in themselves, appear so, by keeping warm air near to the body.

Why should the water poured upon tea be at the boiling point? Because it requires the temperature of boiling water to dissolve and extract the tea oil and tannic acid.

Marketing—Hints on.

The purchaser will do well to keep in view one or two simple rules. Whatever kind of provisions be required, it is invariably the wisest course to deal with those tradespeople who have a large business, and who are known and respectable. It is the interest of such persons to supply their customers with the best articles, and for this purpose they themselves must go to the best markets. As a general rule they are under no temptation to overcharge their customers. Their success in business and their profit depend on the number of their retail transactions, and if the number be great, they are all the more able to supply the best articles, and to be content with the smallest profits on each individual sale. As an illustration of this it may be stated that, with very few exceptions, all commodities are dearer, as well as of inferior quality, in shops in the suburbs than in those situated in large cities: the reason is that small dealers, who have comparatively few transactions, must necessarily make up for the defects of their business by obtaining

large profits on individual sales, while, at the same time, they have little or no encouragement to obtain the best goods, and in many cases want of sufficient capital renders this impracticable. It will be usually found, however, that there is no economy in purchasing inferior articles. In butcher's meat, for example, the best meat, and the best parts of the meat, although at first a little dearer, are in reality cheaper in the end.

Dr. Kitchiner's Rules for Marketing.

The best rule for marketing is to pay ready money for everything, and to deal with the most respectable tradesmen in your neighborhood. If you leave it to their integrity to supply you with a good article at the fair market price, you will be supplied with better provisions, and at as reasonable a rate as those bargain-hunters who trot around till they are trapped to buy some upchewable old poultry, tough mutton, stringy cow beef, or stale fish, at a very little less than the price of prime food. All the skill of the most accomplished cook will avail nothing unless she is furnished with good provisions. The best way to procure these is to deal with shops of established reputation: you may appear to pay, perhaps, ten per cent. more than you would were you to deal with those who pretend to sell cheap, but you would be much more than in that proportion better served. Every trade has its tricks and deceptions; those who follow them can deceive you if they please, and they are too apt to do so if you provoke the exercise of their overreaching talent. Challenge them to a game of "Catch who can," by entirely relying on your own judgment and you will soon find that nothing but very very long experience can make you equal to the combat of marketing to

the utmost advantage. If you think a tradesman has imposed upon you, never use a second word, if the first will not do, nor drop the least hint of an imposition; the only method to induce him to make an abatement is the hope of future favors; pay the demand, and deal with the gentleman no more; but do not let him see that you are displeased, or as soon as you are out of sight your reputation will suffer as much as your pocket has. Before you go to market, look over your provision and consider well what things are wanting—especially on a Saturday. No well-regulated family can suffer a disorderly caterer to be jumping in and out to make purchases on a Sunday morning. You will be enabled to manage much better if you will make out a bill-of-fare for the week on the Saturday before.

It is an excellent plan to have certain things on certain days. When your butcher knows what you will want, he has a better chance of doing his best for you. When you order meat, poultry, or fish, tell the tradesman when you intend to dress it: he will then have it in his power to serve you with provision that will do him credit, which the finest meat, in the world will never do, unless it has been kept a proper time to be ripe and tender.

Vegetables as Medicines.

Lettuce for those suffering from insomnia.

Peanuts for indigestion. Peanuts are made into a wholesome and nutritious soup, are browned and used as coffee, are eaten as a relish simply baked, or are prepared and served as salted almonds.

Onions are almost the best nervine known. No medicine is so useful in cases of nervous prostration, and there is nothing else that will so quickly relieve and tone up a worn-out system.

Onions are useful in all cases of coughs, cold and influenza, in consumption, insomnia, hydrophobia, scurvy, gravel and kindred liver complaints. Eaten every other day, they very soon have a clearing and whitening effect on the complexion.

Spinach is useful to those with gravel.

Asparagus is used to induce perspiration.

Carrots for sufferers from asthma.

Turnips for nervous disorders, and for scurvy.

Honey is wholesome, strengthening, cleansing, healing and nourishing.

Fresh, ripe fruits are excellent for purifying the blood and toning up the system. As specific remedies oranges are aperient. Sour oranges are highly recommended for rheumatism.

Cranberries for erysipelas are used externally as well as internally.

Lemons for feverish thirst in sickness, for biliousness, low fevers, rheumatism, coughs, colds, liver complaint, etc.

Blackberries as a tonic. Useful in all forms of diarrhoea.

Tomatoes are a powerful aperient for the liver, a sovereign remedy for dyspepsia and indigestion.

Pie-plant is wholesome and aperient; is excellent for rheumatic sufferers and useful for purifying the blood.

Fruits as Foods.

Dr. Sophie Lepper, the English food specialist, in speaking of peculiarities of various foods, says that:

Blanched almonds give the higher nerve, brain and muscle food—no heat or waste.

Walnuts give nerve or brain food, muscle, heat and waste.

Green grapes are good blood purifiers, but of little food value; reject pips and skins.

Blue grapes are nourishing and blood-purifying; too rich for those who suffer from the liver.

Tomatoes, higher nerve or brain food and waste, no heat. They are thinning and stimulating. Do not swallow skins.

Juicy fruits give more or less the higher nerve or brain, and some of them, muscle food and waste; no heat.

Apples supply the higher nerve or muscle food; they are the best of all fruits.

Prunes afford the highest nerve or brain food, supply heat and waste, but are muscle feeding. They should be avoided by those who suffer from the liver.

Oranges are refreshing and nourishing, but are not good if the liver is out of order.

Green figs are excellent food.

Dried figs contain nerve and muscle food, heat and waste, but are bad for the liver.

The great majority of small seed-fruits are laxative.

All stone fruits are considered to be injurious to those who suffer from the liver, and by them should be used cautiously.

Lemons and tomatoes should not be used daily in cold weather; they have a thinning and cooling effect.

Raisins are stimulating in proportion to their quality.

Diet in Hot Weather.

In dry, sultry weather the heat ought to be counteracted by means of a cooling diet. To this purpose cucumbers, melons, and juicy fruits are subservient. We ought to give the preference to such alimentary substances as lead to contract the juices which are too much expanded by the heat, and this property is possessed by all acid food and drink. To this class belong all sorts of salads, lemons, oranges, pomegranates sliced and sprinkled with sugar, for the acid of this fruit is not so apt to derange the stomach as that of lemons; also cherries and straw-

berries, curds turned with lemon acid or cream of tartar; cream of tartar dissolved in water, and lemonade.

Order of a Dinner Menu, or Bill of Fare.

With the Terms of Cuisine (or Cookery), in French-English and English-French.

FRENCH	ENGLISH
Hors d'œuvres.	Appetizers.
Potage.	Soup.
Poissons.	Fish.
Relevés.	Removes.
Entrées.	Entrees.
Rôts.	Roasts.
Legumes.	Vegetables.
Entremets.	Side dishes.
Gelées, Crêmes.	Jellies, Creams.
Fromage.	Cheese.
Dessert.	Dessert.*
Glaces.	Ices.

*Fruit being on the table from the first, it is optional to set down Dessert in the Menu.

Hints on Carving.

Sufficient general instructions are here given to enable the carver, by observation and practice, to acquit himself well. The art of carving does not consist merely in dissecting the joints sent to table, but in the judicious and economical distribution of them, and the grace and neatness with which this distribution is effected. Every dish should be sent to the table properly garnished (where needed), and the carver should preserve the neatness of the arrangement as much as possible.

Fried Fish should be divided into suitable slices, before the fire, as soon as it leaves the frying-pan.

Salmon.—Serve a slice of the thick with a smaller slice of the thin part. Keep the flakes of the thick part as unbroken as possible.

Mackerel should be served in pieces cut through the side when they are large. If small, they may be divided through the backbone, and served in halves. The shoulder part is considered the best. A boiled mackerel should never be divided through, but a broiled mackerel, being split, should be cut through, bones and all.

Haddock and Gurnet are served as directed for mackerel.

Whiting are usually curled and fried; they should be cut in halves across the back, and served. The shoulder part is best.

Eels are usually cut into several pieces, either for stewing or frying. The thick parts are considered best.

Trout, if small, are served whole; if large, they may be divided through the back-bone and served in halves. The same applies to perch and other smaller fresh-water fish.

Pike should be served in thick unbroken pieces taken from the side or shoulder of the fish, accompanied by a piece of the stuffing with which these fish are usually filled.

Remarks.—In carving fish, a fish-slice should always be used, not a steel knife. The roes of shad, the sound of cod, the head of carp, the cheek of John Dory, the liver of cod, etc., are severally considered delicacies, though not by all persons.

Saddle of Mutton.—Cut thin slices parallel with the back-bone; or slice it obliquely from the bone to the edge, and serve with each portion a piece of fat from the region of the kidneys.

Haunch of Mutton or Venison.—Make an incision across the knuckle-end, right into the bone, and set free the gravy. Then cut thin slices the whole length of the haunch. Serve pieces of fat with slices of lean. The incision along the haunch is called "Alderman's Walk."

Rump or Sirloin of Beef.—The under-cut, called the "fillet," is exceedingly tender, and some carvers will turn the joint and serve the fillet first, reserving the meat on the upper part to be eaten cold. The fillet should be cut transversely into thick slices like a tongue; as also should the fat at the thin end, a portion being served with each slice of lean. From the upper part, whether hot or cold, the slices should be cut lengthwise from top to bottom, so that the fat and lean may be distributed in fair proportions.

Ribs of Beef are carved in the same way as the sirloin; but there is no fillet.

Round of Beef.—First cut away the irregular outside pieces, to obtain a good surface, and then serve thin and broad slices. Serve bits of the under fat with the lean.

Brisket of Beef.—Cut off the outside, and then serve long slices, cut the whole length of the bones.

Shoulder of Mutton.—Make a cross incision on the fore-part of the shoulder and serve slices from both sides of the incision; then cut slices lengthwise along the shoulder-blade. Cut fat slices from the round corner. Another and more economical way is to cut slices from the under part when first brought to table. The joint then presents a better appearance when cold.

Leg of Mutton.—Make an incision across the center, and serve from the knuckle-side or the opposite, according to choice. The knuckle-side will be generally found well done, and the opposite side underdone for those who prefer it.

Loin of Mutton.—Cut down between the bones, into chops.

Quarter of Lamb.—Lay the knife flat, and cut off the shoulder. The proper point for incision will be indicated by the position of the shoulder. A little lemon juice may be squeezed

over the divided part, and a little Cayenne pepper, and the shoulder transferred to another dish, for the opposite end of the table. Next separate the brisket, or short bones, by cutting lengthwise along the breast. Then serve from either part as desired.

Loin of Veal may be cut across through the thick part; or slices may be taken in the direction of the bones. Serve pieces of kidney and fat with each plate.

Fillet of Veal is carved as a round of beef. The browned bits of the outside are esteemed, and should be shared among the company, with bits of fat, and of forcemeat from the center.

Breast of Veal should be divided by cutting the brisket, or soft bones, the same as the brisket of lamb. When the sweetbread comes to table with the breast, a small piece should be served on each plate.

Sucking Pig should be sent to table in two halves, the head divided, and one half laid at each end of the dish. The shoulders and legs should be taken off by the obvious method of laying the knife under them, and lifting the joint out. They may be served whole, or divided. The ribs are easily divided, and are considered choice.

Tongues are cut across in tolerably thick slices.

Leg of Pork is carved as a ham, but in thicker slices; when stuffed, the stuffing must be sought for under the skin at the large end.

Loin of Pork is carved the same as a loin of mutton.

Sparerib of Pork is carved by separating the chops, which should previously have been jointed. Cut as far as the joint, then return the knife to the point of the bones, and press over to disclose the joint, which may then be divided with the point of the knife.

Hams are cut in very thin slices from the knuckle to the blade.

Fowls.—Fix the fork firmly into the breast, then slip the knife under the leg, and lay it over and disjoint; detach the wings in the same manner. Do the same on both sides. The smaller bones require a little practice, and it would be well to watch the operations of a good carver. When the wish-bone has been removed (which it may be by slipping the knife through at the point of the breast), and the neck-bones drawn out, the trunk may be turned over, and the knife thrust through the backbone.

Partridges are best carved by cutting off the breast, and then dividing it. But for more economical carving the wings may be cut with a small breast slice attached.

Woodcocks and Snipes may be cut right through the center, from head to tail. Serve with each portion a piece of the toast upon which they have come to table.

Pigeons may be carved as woodcocks, or as partridges.

Turkey.—Cut slices from each side of the breast down to the ribs; the legs may then be removed, and the thighs divided from the drumsticks, which are generally tough; but the pinions of the wing are very good, and the white part of the wing is preferred by many to the breast. The stuffing is usually put in the breast; but when truffles, mushrooms, or oysters are put into the body, an opening must be made into it by cutting through the apron.

Goose.—The apron must be cut off in a circular direction, when a glass of port wine, mixed with a teaspoonful of mustard, may be poured into the body or not. Some of the stuffing should then be drawn out, and, the neck of the goose being turned a little

towards the carver, the flesh of the breast should be sliced on each side of the bone. The wings may then be taken off, then the legs. The other parts are carved the same as a fowl.

Ducks may be carved, when large, the same as geese; but when young, like chickens. The thigh joints, however, lie much closer into the trunk than those of fowls.

Observances of the Dinner Table.

A dinner table should be well laid, well lighted, and always afford a little spare room. It is better to invite one friend less in number, than to destroy the comfort of the whole party. The room should be warmed to the right heat; before bringing in the cloth or other articles for the table, have the room carefully dusted.

The laying out of a table must greatly depend upon the nature of the dinner or supper, the taste of the host, the description of the company, and the appliances possessed. It would be useless, therefore, to lay down specific rules. The whiteness of the tablecloth, the clearness of glass, the polish of plate and the judicious distribution of ornamental groups of fruits and flowers, are matters deserving the utmost attention.

A sideboard will greatly relieve a crowded table, as many things incidental to the successive courses may be placed upon it until they are required.

A Bill of Fare or Menu at large dinner parties, where there are several courses, should be provided, neatly inscribed upon small tablets, and distributed about the table, so that the diners may know what there is to come.

Napkins should be folded neatly. The French method, which is very easy, of folding the napkin like a fan, placing it in a glass, and spreading out the upper part, is very pleasing. But the English method of folding it like a

slipper or a mitre, and placing the bread inside its folds, is convenient as well as neat.

Bread should be cut into thick squares, the last thing after the table is laid. If cut too early, it becomes dry. Small dinner rolls are very convenient. A tray should be provided in which there should be a further supply of bread, new, stale, and brown. For cheese, pulled bread should be provided.

Carving-knives should be sharpened before the dinner commences, for nothing irritates a good carver, or perplexes a bad one, more than a knife which refuses to perform its office, and there is nothing more annoying to the company than to see the carving-knife gliding to and fro over the steel while the dinner is getting cold, and their appetites are getting exhausted by delay.

At large dinner parties the carving is usually done at a side table by a professional carver, but when this plan is not adopted, joints that require carving should be set upon dishes sufficiently large. The space of the table may be economized by setting upon small dishes those things that do not require carving.

The vegetables should be placed upon the sideboard, and handed round by those who wait upon the guests.

Geese, turkeys, poultry, sucking pigs, etc., should be carved before being set on table; especially in those cases where the whole or the principal part of such dishes is likely to be consumed.

Ladies should be helped before gentlemen, and the waiters should present dishes on the left hand, so that the diner may help himself with his right.

Waiters should be instructed to remove whatever articles upon the table are thrown into disuse by the progress

of the dinner, as soon as they are at liberty.

Finger-glasses or glass bowls, filled with water, slightly scented or not, as may be preferred, and slightly warm in winter, and iced in summer, should be placed before each guest with the dessert plate.

Dinner Parties.

Invitations should be sent out at least a week beforehand.

Accept or decline an invitation by return of post.

Strictly keep to your engagements and make a point of punctuality.

For gentlemen black coats are indispensable for either a dinner or a ball!

The host and hostess should be in the drawing-room to receive their guests.

When dinner is announced the host offers his arm to the principal lady guest and conducts her to the dining-room, the rest of the company follow in couples as arranged by either the master or mistress of the house—the latter with her attendant gentleman always entering the dining-room last.

The places of the various guests at the table are usually indicated by cards bearing their names.

Each gentleman during dinner should attend to the wants of the lady placed under his care, and choose subjects of conversation likely to prove agreeable to her. (See *Etiquette*, 100 Rules of).

MEDICAL DEPARTMENT.

The medical division of this work has been constructed under the supervision of Dr. Robert G. Marriner, formerly of Chicago, now a resident of Menominee, Michigan. He has been not only keenly alive to the fact that great advances have been made of late in medical science, but has been filled with the ambition to keep abreast of them. Much new and valuable matter from both domestic and foreign journals has been brought together in these pages. A few old remedies which have fallen into undeserved neglect have also been added. It has been the object of this department to represent the combined experience of all that is new and good, and yet to hold on to those things which experience has taught us to be valuable.

First Helps.

Those who live on farms or ranches, or in other places where medical help is difficult to get, would do well to procure the following list of medical necessities for the household. In all doubtful or serious cases send at once for the nearest doctor.

List of Medical Necessities.

A graduated Medicine Spoon or Medicine Glass.

Hot Water Bag.

An Enema Syringe (holding three quarts).

Absorbent Borated Cotton (a small package).

Court Plaster.

Spirits of Ammonia (4 ounces).

Tincture of Arnica (2 ounces).

Spirits of Camphor (2 ounces).

Carbolic Acid—Poison (2 ounces).

Castor Oil (4 ounces).

Cold Cream (small jar).

French Brandy, or Whiskey (one pint).

Ground Ginger (one pound).

Essence of Ginger (2 ounces).

Ground Linseed (one pound).

Ground Mustard ($\frac{1}{2}$ pound).

Essence of Peppermint (2 ounces).

Quinine (50 one-grain pills).

Bi-carbonate of Soda—Saleratus ($\frac{1}{2}$ pound.)

Talcum powder (two ounces.)

Vaseline (Carbolized is best).

Supplementary List.—If the above list be supplemented with the following list of materials, one will possess a medicine chest capable of meeting all the emergencies of everyday life: Laudanum (Poison). Never give Laudanum to children under ten years of age.

Paregoric (2 ounces).

Tincture Acónite ($\frac{1}{2}$ ounce).

Caustic Pencil.

Sweet Spirits of Nitre (2 ounces).

Sal Volatile (2 ounces).

Witch Hazel (4 ounces).

Phenacetine (50 grains).

Surgeons' Plaster.

Fever Thermometer.

Medicine Dropper or Drop Bottle.

Poisons.

Poisons and liniments should always be kept out of the reach of children and entirely separate from internal remedies.

Enema.

Every household should have an Enema Syringe. Obstinate constipation is easily and naturally relieved by a single enema of soap and warm water.

Medicine Spoon or Glass.

We would urge every one when taking medicine to use a properly graduated medicine spoon or glass; for the

ordinary spoons now in use differ very much in size and are so often too large or too small that one can never depend upon getting the exact dose,

which is very important. Quantities less than half teaspoonful should always be dropped by means of a special Medicine Dropper or Drop Bottle.

READY REFERENCE LIST OF COMMON MEDICINES AND THEIR USES.

ACONITE	Cold and Fever ...	Given in water 2 drops every hour until sweating relieves.
TINCTURE of.		
ALBUMEN	Antidote to metallic poisons.	It forms an insoluble compound with most metallic poisons, and should be given mixed with water.
(White of egg.)		
ALCOHOL.....	Stimulant.....	Given as brandy or whisky diluted with water. Give with caution.
ALOES.....	Purgative.....	Given in conjunction with other purgatives, etc. Dose: 2 to 6 grains.
ALUM	Astringent	Used as a styptic, and in gargles and injections. Only for external use.
AMMONIUM	Diaphoretic and re-	Useful in feverish colds, influenza, etc.
ACETATE of.	frigerant.	Dose of the dilute liquor: $\frac{1}{2}$ to 2 tea-spoonfuls.
BENZOATE of....	Diuretic.....	Useful in dropsy. Dose: 10 to 20 grains in water.
BROMIDE of.....	Nervine	Very useful in sleeplessness, hysteria and neuralgia. Dose: 5 to 20 grains.
" CARBONATE	Antacid, stimulant	Useful in bronchitis, combined with
of.	and expectorant.	Ipecacuanha, and in indigestion combined with Rhubarb. Dose: 3 to 10 grains.
" CHLORIDE of.	Expectorant, di-	As a vapor for inhalation it is very
	aphoretic and	useful in affections of the bronchial
	diuretic.	tubes. Internally it is best given
		flavored with liquorice. Dose: 5 to 20 grains.
ANTIPYRINE	Febrifuge	Given successfully in fevers, feverish
	Lowers the pulse.	colds, influenza, headache, etc.
		Dose: 3 to 5 grains.
ARROWROOT....	Nutritive	Forms a pleasant and wholesome food for invalids.
ARSENIC Prepara-	Nerve tonic, and	Useful in eczema and diseases of the
tions.	antiperiodic.	skin, but must only be given under the supervision of a doctor.
BELLADONNA....	Powerful narcotic.	A very valuable medicine but only to be given under doctor's orders.
		Used very largely as liniment and plaster to allay local pain.

Ready Reference List of Common Medicines and their Uses. (Cont'd)

BORIC ACID.....	Antiseptic.....	As a 4 per cent. solution in water it forms a very effectual lotion for the eyes, and in powder it may be used for dusting purposes; mixed with vaseline it yields an excellent every-day ointment.
BORAX.....	Astringent and refrigerant.	Combined with glycerine or honey is used largely for ulcers of the mouth in children. Its solution in water gives an excellent gargle. A little placed in hard water softens it.
BUCHU.....	Tonic and diuretic.	Employed principally in diseases of the bladder in the form of an infusion.
CAFFEINE and its preparations.	Tonic and stimulant.	Used largely with success in sick headache and nervous complaints. Of its preparations the citrate is the best, the dose of which is $\frac{1}{2}$ to 3 grains in water.
CALOMEL.....	Alternative purgative.	Is an excellent purgative in bilious headache. Care must be taken in giving calomel; it is best to give it combined with other purgatives in the form of a pill. Dose: 1-10 to 3 grains.
CAMOMILE..... Flowers.	Bitter tonic	Very useful in disorders of the stomach and indigestion. Can be taken as infusion, or the extract in pills.
CAMPHOR.....	Stimulant and sedative.	Spirit of Camphor, taken on sugar cures cold in the head (10 drops for a dose). Camphorated Oil is an excellent liniment to use for cold on the chest in children.
CARBOLIC ACID..	Antiseptic.....	Teaspoonful to pint of water to wash sores.
CASCARA SAGRADA.	Laxative....	Beneficial in chronic constipation and dyspepsia. Dose of fluid extract: 10 to 15 drops after each meal, in water. The powder can easily be administered in cachets. Also given in pills.
CASTOR OIL.....	Cathartic	Safe and effectual. Dose: 1 teaspoonful to 2 tablespoonfuls.
CATECHU.....	Astringent.....	Useful in diarrhoea. Dose: $\frac{1}{2}$ to 1 teaspoonful of the tincture with a tablespoonful of Chalk Mixture.

Ready Reference List of Common Medicines and their Uses. (Cont'd)

CHALK.....	Astringent and ant-acid.	Antidote for poisoning by oxalic acid. Useful in diarrhoea. Dose: 10 to 60 grains.
CHARCOAL.....	Antiseptic and absorbent.	Given largely for dyspepsia attended with flatulence and acidity. Dose: 2 to 10 grains. Used externally as a poultice for ulcers.
CHLORAL HY- DRATE.	Hypnotic	A valuable drug but must only be used by the doctor's order. Dose: 5 to 30 grains.
COCA.....	Tonic and stimulant.	Its reputation as a general tonic is now well established. Its alkaloid "Cocain" has been largely employed as a local anæsthetic and for the prevention of sea-sickness. Dose: $\frac{1}{5}$ grain.
COD LIVER OIL.	Demulcent and nutrient.	Useful in chest diseases. Dose: 1 tea-spoonful to 1 table-spoonful twice a day.
COLCHICUM.....	.....	Remedy for rheumatic gout. Must not be given indiscriminately. Dose of wine or tincture: 5 to 20 drops.
COLD CREAM....	Emollient.....	A good family ointment.
COLLODION.....	.....	Painted on a wound it forms a skin protecting it from exposure. Always apply immediately if burned.
COMMON SALT....	.....	An emetic always handy in case of poisoning. To be given freely in warm water.
CREAM of TAR- TAR.	Refrigerant, diuretic.	A pleasant spring medicine. A tea-spoonful in water every morning along with the same quantity of Epsom Salts.
CREOSOTE.....	Astringent and antiseptic.	Useful for toothache and given internally for pulmonary complaints. Poison.
DANDELION ROOT (Tar- axacum).	Hepatic stimulant.	Useful in cases of sluggish liver. Dose of the fluid Extract: 1 or 2 tea-spoonfuls in water 3 times a day.
DIALYSED IRON.	Tonic.....	Can be taken when the acid preparations of iron, cannot be borne. (An antidote to arsenical poisoning). Dose: 10 drops in water after meals, as a tonic.
DILLWATER....	Carminative	Safe and effectual for children. Dose: a teaspoonful in milk.

Ready Reference List of Common Medicines and their Uses. (Cont'd)

ELDER..... FLOWERS.	Demulcent.....	A small handful to be infused for a quarter of an hour in boiling water and drunk freely.
EPSOM SALTS....	Cathartic.....	Mild and safe; useful in obstinate constipation. Dose: $\frac{1}{2}$ to 1 ounce.
ERGOT.....	Hæmostatic.....	Useful to check Hæmorrhage. The Dragees of "Ergotin Bonjean" are the handiest form of administration. Dose: 1 every 2 hours, or of the Fluid Extract 10 to 30 drops.
EUCALYPTUS....	Antiseptic (Gum) astringent.	The oil as an inhalation gives relief in affections of the bronchial tubes. Eucalyptus or red gum lozenges are excellent for sore throat.
GENTIAN.....	Bitter Tonic.....	Valuable in debility of the digestive organs. Dose: half a wineglassful of the infusion.
GINGER.....	Aromatic stimulant.	Given in dyspepsia and flatulence. Dose of Essence: 10 to 20 drops in water.
GLYCERINE.....	Nutrient, demulcent, and emollient.	Prevents flatulence and acidity. Dose: 10 drops to 1 tea-spoonful in water. Used chiefly externally for softening the skin.
GREGORY'S..... POWDER.	Stomachic.....	One of the finest stomachics. Dose: a tea-spoonful in water.
GREY POWDER..	Purgative.	The best preparation of mercury for children. Dose: 1 to 6 grains.
GUM ARABIC....	Emollient, nutritive.	Allowed to dissolve in the mouth relieves a cough.
HORSERADISH..	Stimulant and depurative.	A useful spring medicine for children.
HYDROCHLORIC ACID.	Refrigerant and tonic.	Given in dilute form in indigestion.
IODINE.....	Resolvent, counter irritant.	Used principally in the form of tincture or liniment as an external application to reduce swellings, etc.
IODOFORM	Antiseptic.....	In powder or ointment forms a good application for ulcers, etc.
IPECACUANHA...	Expectorant and Emetic.	In small doses acts as an expectorant relieving coughs, colds, etc. In large doses forms a safe emetic, useful in whooping cough, etc. Dose, as an expectorant, in powder: $\frac{1}{2}$ to 2 grains, as an emetic, 15 to 30 grains. Wine, expectorant 5 to 40 drops, as emetic, 3 to 6 tea-spoonfuls.

Ready Reference List of Common Medicines and their Uses. (Cont'd)

IRON	Tonic.....	In its various forms it is one of the finest blood restoratives we have, as it forms one of the principal constituents of that fluid. Reduced Iron, Tincture of Iron, Ammonia-citrate of Iron and Dyalysed Iron are the preparations most used.
JALAP	Brisk cathartic...	Best used in combination as in compound Jalap Powder, the dose of which is 20 to 60 grains.
KOLA	Caffeinic stimulant.	Increases the power of enduring fatigue without food. As a general tonic it is excellent.
LANOLIN	Emollient.....	Useful for skin diseases, generally combined with other medicaments.
LEAD Preparations.	Sedative and astringent.	Should always be used with caution.
LEMON JUICE ... (Citric acid.)	Refrigerant.....	Mixed with sugar and water forms a pleasant and refreshing drink in fevers, or in hot weather.
LIME (slaked)	Antacid.....	Lime water forms a good addition to infants' milk when the water is too soft or they suffer from teething. Mixed with Linseed Oil is the best application for burns.
LINSEED	Demulcent.....	An infusion mixed with Lemon Juice is useful in colds. Mixed with warm water and drunk forms a good laxative.
LINSEED MEAL	Demulcent.....	Useful as a poultice either alone or in conjunction with mustard.
LIQUORICE POWDER (Compound).	Laxative.....	A reliable remedy in habitual constipation. Specially recommended to ladies. Dose: a teaspoonful at bedtime.
MAGNESIA, CALCINED	Antacid, alterative and laxative.	Useful in dyspepsia, gout, sick headache and other complaints attended with acidity and constipation. Dose: a tea-spoonful.
" CITRATE of (Granular).	Refrigerant and laxative.	Useful and pleasant in the hot weather.
MALT EXTRACT.	Restorative.....	A good strengthening medicine in dyspepsia and pulmonary complaints.
MANNA	Laxative.....	Pleasant to the taste, it replaces castor oil for children. Dose: $\frac{1}{2}$ to 2 drachms in milk.

Ready Reference List of Common Medicines and their Uses. (Cont'd)

MENTHOL.....	.....	Useful as a local application in nervous affections.
MILK SUGAR....	.....	Recommended to replace ordinary sugar in infants' diet, as it does not ferment.
MORPHINE and other opium preparations.	Narcotic and sedative.	It is always advisable to consult a doctor before and while using these valuable but dangerous drugs. (Poison.)
MUSTARD	Rubefacient and emetic.....	Useful as a counter-irritant, in the form of a poultice, for cold in the chest.
NUX VOMICA	Tonic	A powerful poison which should only be taken under medical advice.
OPODELDOC	Stimulant.....	A useful stimulating liniment.
PEPPERMINT	Carminative.....	Essence of Peppermint is an excellent remedy in dyspepsia attended with flatulence in Doses of 20 drops in water.
PEPSIN	Digestive.....	Recommended in the form of powder or Elixir. To be taken after each meal. 5 grains of powder or a teaspoonful of Elixir.
PEPTONES.....	.....	Peptones are preparations of food already partially digested and are very useful when food is not readily assimilated.
PODOPHYLLIN ...	Purgative.....	Replaces calomel where vegetable substances are preferred. Dose: $\frac{1}{8}$ to $\frac{1}{2}$ grain.
POPPY CAPSULES	Sedative....	They form a good fomentation for gum-boils and painful swelling in conjunction with camomile flowers. The whole to be boiled with water for some time and applied as hot as possible.
POTASH ACETATE	Diuretic.....	Useful in dropsy. Dose: 10 to 20 grains.
" BICARBONATE of.	Antacid.....	Useful in gout and rheumatism. Dose: 10 to 20 grains.
" BROMIDE of.	Sedative.....	Useful in nervous diseases. Dose: 20 to 60 grains during the 24 hours.
" CHLORATE of	Stimulant and diuretic.	Useful in ulcerated sore throat and mouth as a gargle, or in the form of lozenges.

Ready Reference List of Common Medicines and their Uses. (Cont'd)

POTASH CITRATE of.	Refrigerant, diaphoretic, and slightly laxative.	Valuable in gout and rheumatism and in affection of the kidneys.
" IODIDE of...	Alterative, solvent and antisyphilitic.	Given in glandular swellings, rheumatism, syphilis, etc. In combination with sarsaparilla forms an excellent blood purifier. 1 to 5 grains 3 times daily.
" NITRATE of..	Refrigerant, diuretic, and diaphoretic.	Useful in kidney troubles. Dose: 2 to 20 grains.
" PERMANGANATE of.	Powerful antiseptic.	In weak solutions much used as an injection. Internally for diabetes. Is a good general disinfectant. Dose: $\frac{1}{2}$ to 2 grains.
QUININE.....	Antiperiodic, Febrifuge and nerve tonic.	Quinine, obtained from Peruvian bark, is perhaps the most universally used and valuable drug we possess. Its uses are too numerous to mention here, but its principal ones are for reducing fevers, for nervous affections, and especially as a general tonic in the form of Quinine Wine.
RHUBARB.....	Stomachic	Useful in disorders of the stomach in combination with bicarbonate of soda or as Gregory powder. Dose: 1 to 20 grains.
SALICYLIC ACID..	Antiseptic.....	Useful in acute rheumatism.
SARSAPARILLA..	Depurative.....	In combination with iodide of Potassium forms an excellent blood purifier and spring medicine. Dose of the fluid Extract: 1 tea-spoonful three times a day.
SAL VOLATILE...	Antacid, stimulant.	Very good as an antacid in cases of flatulence, and as a stimulant in faintness, etc. Dose: 20 to 40 drops in water.
SENNA.....	Cathartic	Very well known and useful family medicine. To be given as an infusion or in the form of compound Liquorice Powder or Fl. Extract.
SODA Preparations.	.....	The preparations of soda have practically the same action as those of Potash above but are much safer to use as some of the Potash preparations possess toxic properties.

Ready Reference List of Common Medicines and their Uses. (Cont'd)

SODA.	Antacid and anti-rheumatic	Useful in acute rheumatism. Dose: 5 to 20 grains.
· SALICYLATE of.	Aperient	A good Saline aperient. Dose: $\frac{1}{2}$ to 1 ounce in warm water.
" SULPHATE of (Glauber's Salts).		
SEIDLITZ - P O W - DER.	Aperient	A useful and convenient Saline aperient.
SWEET NITRE...	Stimulant, diaphoretic, and diuretic.	Useful in affections of the kidneys and catarrh. Dose: $\frac{1}{2}$ to 1 teaspoonful in water.
SQUILL.....	Stimulant, expectorant, and diuretic.	Very beneficial in bronchial affections. The best preparation of which is the Oxymel; the dose being $\frac{1}{2}$ to 1 teaspoonful mixed with Ipecacuanha Wine and Sweet Nitre.
STRAMONIUM....	Antispasmodic and anodyne.	Inhalation of the smoldering leaves gives great relief in asthma, etc. The cigarettes are a pleasant form of using.
STARCH POWDER	.....	Forms with powdered orris root a safe and useful toilet and nursery powder.
SUBLIMATE, CORROSIVE.	Corrosive and antiseptic.	One of the most powerful antiseptics for destroying disease germs, but on account of its highly poisonous and corrosive nature is very dangerous to use. (Poison.)
SULPHONAL.....	Produces sleep....	Best taken in the form of cachets or tablets. Given in doses of from 10 to 15 grains, sleep usually develops in a half an hour to an hour. It is usually quite safe and not followed by disagreeable after-effects.
SULPHUR.....	Laxative, diaphoretic, and solvent.	A useful laxative in Hemorrhoids, in the form of Confection or Compound Liquorice powder. Used externally as a lotion or ointment for skin diseases.
TANNIN.....	Astringent	Very efficacious where an astringent is required. Principally used in solution or lozenges for inflamed sore throat. Forms with vaseline a good ointment for hemorrhoids.
TURPENTINE....	Stimulant, anthelmintic internally; rubefacient externally.	As the ordinary Turpentine liniment, is a good application for rheumatism, etc.

Ready Reference List of Common Medicines and their Uses. (Cont'd)

TAR.....	.....	Valuable in bronchial affections.
VALERIAN	Nervous stimulant and antispas- modic.	Useful in hysteria, usually prescribed as Valerianate of Zinc.
VASELINE	Emollient.....	Either combined with other medicinal agents or alone forms an excellent application for wounds, etc.
ZINC OXIDE	Astringent and ab- sorbent.	Used largely externally as a powder and ointment for its healing prop- erties.

DISEASES AND THEIR REMEDIES.**Abrasion.**

Abrasion is applied to the removal of the outer skin or cuticle by violent friction; for example, coming in contact with a hard surface, or by falling, by which the skin is eroded. The treatment consists in removing all dirt that may have imbedded itself in the injured surface of the skin, by washing with castile soap and hot water, and then applying an antiseptic, the best of which is carbolic acid mixed with oxide of zinc ointment in the proportion of one to sixteen or twenty.

Abscess.

Abscess is an accumulation of matter of a purulent nature. If this consists of pus or matter, it is generally accompanied by severe pain and swelling. It is desirable that the fluid be given exit as soon as possible. This can be done without risk if antiseptic precautions are strictly adhered to. To soothe the pain, applications in the form of poultices or hot applications are very useful.

Acarus or Itch.

This is a parasitic insect affecting the skin. It burrows between the cuticle and true skin, where it lays its eggs and gives rise to the disease commonly called Itch. The treatment consists in destroying both the insects and the eggs,

as they mature, by means of Storax ointment which must be well rubbed into the surface of the skin night and morning for two days in succession, then taking a warm bath, using carbolic soap freely as a cleansing agent, and repeating the application of the ointment during other two days, and again having recourse to the bath and carbolic soap. To be certain of a cure it is well to err on the safe side and apply the Storax ointment for a further period of two days, when, as a rule, the parasite will be completely destroyed. Of course, all the clothing which has been worn during the process should be thoroughly cleansed and disinfected

Acne, Pimples or Blackheads.

Acne is a disease of those glands of the skin which secrete the sebaceous or oily matter. It is characterized by pimples occupying the sites of these glands. One form of Acne is that which goes under the popular name of Comedones or black-heads. On squeezing these the retained secretion comes out on the skin like a little maggot. Acne very frequently occurs upon the face, shoulders, back and chest. It is most common from the age of fifteen to twenty-one. To prevent the disease, frequent washing with a good soap and warm water is

most efficacious, but when the disease has obtained a footing the following lotion will be found useful: Flowers of sulphur, one drachm; rectified spirits of wine, one ounce; glycerine, one ounce; elderflower water to make eight ounces. Shake the bottle and apply every night, at bed time, to the eruption.

Ague.

Ague, or Intermittent Fever, or Malarial Fever, is peculiar to marshy districts where decomposition of vegetable matter is constantly in process. This evidently gives rise to the development of microscopic organisms which find an entrance into the body and produce the symptoms characteristic of the disease. The symptoms commence with a feeling of general lassitude, a sensation of weight in the region of the stomach, and a chilly sensation which rapidly develops into actual shivering and chattering of the teeth. When the disease appears to be at its height the color of the skin becomes livid and the body presents a shriveled appearance. The circulation is feeble and the mucous surfaces become pallid, and sometimes actual stupor or convulsions may supervene. There are shooting pains throughout the head and limbs. This cold stage will in a short time be followed by intense heat and flushing of the whole body, when the pulse becomes quick and bounding accompanied by a throbbing headache, hot skin, intense thirst, thickly coated tongue, and dark-colored urine. This second stage is again followed by a third or sweating stage, when copious perspiration gives rapid relief. All these symptoms may again develop in twenty-four, forty-eight, or seventy-two hours, or at longer periods as the case may be. Quinine is not only the best preventive but also the best curative agent which at present we are acquainted with. Other reme-

dies, such as arsenic, and sulphate of zinc, are also of service. I should, however, be very much inclined to recommend the employment of phenacetine in this disease, as it has a marvelous power in controlling high temperatures when due to fevers. Quinine may be given in five-grain doses every two hours, or phenacetine may be administered in five-grain doses every four hours, but in every instance before employing these antipyretics it is essential that the bowels be thoroughly cleared out, either by means of a full dose of castor oil, or carbonate of soda and rhubarb. Within the last few years malarial districts which have been freely planted with the eucalyptus tree have been rendered healthy, and from these areas the disease has been completely eradicated. This seems to be due to its power of rapidly absorbing moisture and also to the abundant exudations of its essential oil given off by the leaves especially, and to a lesser degree by the whole plant.

Ague—To Avoid.

The first suggestion, of course, is to leave those districts where this troublesome complaint prevails. Sometimes, however, one's residence cannot well be changed. To persons so circumstanced, there are preventions by the use of which the majority might generally escape it. They are as follows:—1. Avoid exposure to the malarial air after sunset and before sunrise. 2. Occupy rooms at night on the sunny side of the house and up stairs. 3. Build a fire in the house as soon as the dew begins to fall. The heat of the fire will do much to kill the malaria. 4. Keep the skin healthy and active by a thorough bath every day on rising, in a warm room, with sufficient friction to produce a healthy reaction. 5. Keep the bowels open by proper diet. In nine

cases out of ten the cause of ague would be easily overcome if the depurating organs were not overtaxed and morbid matters allowed to accumulate in the system to oppress it. 6. Keep premises clean and allow nothing around that will attract flies, and keep the flies and mosquitoes out of the house.

Ankle—Sprained.

Wash the ankle frequently with cold salt and water, which is far better than warm vinegar or decoctions of herbs. Keep your foot as cold as possible to prevent inflammation, and sit with it elevated on a cushion. Live on very low diet, and take every day some cooling medicine. By obeying these directions only, a sprained ankle has been cured in a few days.

Appetite.

Appetite consists in a physiological congestion of the stomach which produces a feeling of craving for food. This we designate Appetite. As soon as food enters the stomach this temporary congestion disappears and the gastric glands come into play, secreting gastric juice, which promotes the digestion of the food. It must, however, be noted that frequently what is called a false appetite exists. This, however, is invariably indicative of a diseased condition of the stomach, and consists in a congested state of the blood-vessels; thus a false appetite is due to disease rather than to the desire of the individual for food. When this condition is present it is essential that the aid of a medical man be called in, as it, in many cases, is the precursor of a much more serious pathological condition.

Appetite—Loss of.

This may be caused by the use or abuse of stimulants, tobacco, or violent mental emotion, and can be rem-

edied by the avoidance of the exciting cause, regularity in eating and simplicity in diet.

Apoplexy.

Occurs only in the corpulent or obese, and the gross or high livers. To treat, raise the head to a nearly upright position; unloose all tight cloths, strings, etc., and apply cold water to the head and warm water to the feet. Have the apartment cool and well ventilated. Give nothing by the mouth until the breathing is relieved, and then only draughts of cold water. No stimulants should be given in any cases of apoplexy, sun-stroke or other fits.

Apples as Medicine.

The apple is such a common fruit that few persons are familiar with its remarkable medicinal properties. Everybody ought to know that the very best thing he can do is to eat apples just before going to bed. The apple is excellent brain food, because it has more phosphoric acid, in easily digestible shape, than any other fruit known. It excites the action of the liver, promotes sound and healthy sleep and thoroughly disinfects the mouth. It also agglutinates the surplus acids of the stomach, helps the kidney secretion and prevents calculus growth, while it obviates indigestion and is one of the best preventives of diseases of the throat. Next to lemon and orange, it is also the best antidote for the thirst and craving of persons addicted to the alcohol and opium habit.

Apple Sayings.

"An apple a day
Sends the doctor away."

"Three apples each day, seven days a week,
Ruddy apple, ruddy cheek."

"Apple in the morning,
Doctor's warning.
Roast apple at night,
Starved the doctor outright.
Eat an apple going to bed.
Knock the doctor on the head."

Asthma.

Is a spasmodic affection of the smaller bronchial tubes. The symptoms are paroxysmal, and the patient is obliged to sit up in bed in consequence of the difficulty of breathing. It differs from bronchitis by the fact that the air is more difficult to expel from the chest than to inhale, the wheeze therefore is heard only on expiration; but if it happens to be combined with bronchitis, the bronchitic wheeze will be heard on inspiration as well. As a rule asthma depends entirely upon some derangement of the digestive organs. It is, however, very peculiar in this respect, that certain atmospheres appear to induce it, whereas other atmospheric influences would appear to keep it in abeyance. The treatment of asthma should in every instance commence by clearing the bowels, regulating the diet, and improving the digestion, while the spasm may be relieved by the inhalation of the fumes of blotting paper which has been saturated with Nitrate of Potash and afterwards dried, so that it will consume rapidly away, evolving at the same time thick volumes of smoke. Smoking stramonium and datura tatula through a clean pipe is also of great service. Frequently the inhalation of a few drops of chloroform on a handkerchief will give relief to the spasm, while rubbing the chest with a liniment containing equal proportions of belladonna liniment, compound camphor liniment, and soap and opium liniment, will be found as a rule to relieve the patient.

Asthma—Cure for.

One ounce boneset, one ounce slippery elm, one ounce flax-seed, 1 ounce liquorice. Simmer together in one quart of water, strain carefully, add one pint of the best molasses and one half pound of loaf sugar. Simmer them all together and when cold, bottle tight. Take a tablespoonful after meals.

Atrophy.

A wasting of the whole body—generally produced by the body receiving an insufficient supply of nourishment, arising from imperfect digestion, diarrhœa, and in children, very frequently from worms. The best treatment is to keep the bowels regular, and administer mild tonics, or alteratives, accompanied with a nutritious diet; cleanliness, fresh air, and moderate exercise are also essential. When worms are the cause, attempts should be immediately made to remove them.

Babies—Food for.

Mothers who are not able to nurse their babies, find it almost impossible to keep the milk they are compelled to use so perfectly sweet as not to injure their little ones. Ice, if it can be had, does not wholly answer, even if its excessive cold does not change the character of the milk. A few years since, the writer of this, while in a southern state, recommended the following plan to a mother: Mix your babe's food milk with its due proportion of sugar, and place the pitcher holding it in a deep plate—a soup-plate or pie dish will do—and fill the plate with cold water. Take a piece of thin muslin large enough to cover the whole pitcher and reach down all sides into the water. Have no cover on the pitcher, wet the cloth and cover the pitcher with it; put its ends into the water, and set the whole in a place

where a draught of air will pass over it. The mother tried the plan, and during an exceedingly hot summer, through the most sultry days and nights of a long season, the milk never turned at all. The rationale of the thing is easy. The milk is not confined in a close vessel, or in danger of being tainted by nearness to other, perhaps not wholesome food; the thin gauze protects it, yet leaves it open; the draught of air keeps the temperature down by the constant evaporation, while the water is constantly sucked up by the cloth, acting like a wick in a lamp to supply the moisture.

Back—Weak.

Take a beef's gall, pour it into one pint of alcohol, and bathe frequently. It acts like a charm. Avoid the use of corsets and all constrictions of dress.

Baldness.

Baldness as a rule is due to atrophy of the hair follicles. This may be due to some constitutional or hereditary tendency. It may to a certain extent be remedied by the application of a stimulating lotion to the scalp, e. g. tincture of cantharides two drams; spirit of rosemary, one ounce; rose-water to make eight ounces; apply a little night and morning to the scalp, and afterwards the hair should be kept soft by rubbing in a little pomade.

Another Treatment for.—A loosening of the hair frequently occurs in young persons, as well as those of the middle period of life; this, if neglected, becomes real baldness. But, if proper treatment be pursued, the hair will grow afresh, and assume all its pristine strength. A useful practice in men, and those of the opposite sex whose hair is short, is to immerse the head in cold water morning and night; dry the hair thoroughly, and then brush the scalp until a warm glow is produced. In women with long hair this plan is

objectionable, and a better one is to brush the scalp until redness and a warm glow are produced, then dab among the roots of the hair the following lotion: Vinegar of cantharides, one-half ounce; eau de Cologne, one ounce; rose water, one ounce. Mix. If the lotion produce smarting, or tenderness, the brush may be laid aside; but if no sensation is occasioned, the brushing should be resumed, and a second application of the lotion be made. This treatment should be practiced once or twice a day, or at intervals of a few days, according to the state of the scalp; namely, if tender, less; if insensible, more frequently; When the baldness happens in patches, the skin should be well brushed with a soft tooth brush, dipped in distilled vinegar, morning and evening, or dipped in the lotion above mentioned. If the lotion should have the effect of making the hair harsh and dry, this inconvenience may be removed by the use of oil or pomatum after each application of the lotion.

Baldness—Coal Oil for.

A resident of Carrollton, Miss., has discovered that petroleum will make the hair grow. The way that he found out this new property of coal oil was simply this: He had a large boil on the bald place on his head, which gave him much pain, and in the absence of anything else he rubbed coal oil on it. He says it relieved the pain almost instantly, so he continued to rub on the oil until the boil was entirely well, when, to his surprise, he found a thin coating of hair coming out over the bald place. He continued the use of the oil for a month or two, and has now a heavy coat of hair on his head.

Baldness—Other Remedies for.

Take water, 1 pint; pearlash, $\frac{1}{2}$ ounce; onion juice, 1 gill. Mix and cork in a bottle. Rub the head hard

with a rough linen towel dipped in the mixture.

Another.—Salad oil 1 oz.; oil of organum 12 drops; oil of rosemary 10 drops; oil of lavender 6 drops; oil of cloves 2 drops; mix and shake well together.

Another.—Beef suet 1 oz.; tincture of cantharides 1 teaspoonful; oil of organum and bergamot, of each 10 drops. Process: Melt the suet, and when nearly cold, add the rest and stir until set.

Another.—The decoction of boxwood, successful in cases of baldness, is thus made:—Take of the common box which grows in garden borders, stems and leaves, four large handfuls; boil in three pints of water, in a closely covered vessel, for a quarter of an hour, and let it stand in a covered earthenware jar for ten hours or more; strain, and add an ounce and a half of Eau de Cologne, or lavender water, to make it keep. The head should be well washed with this solution every morning.

Balsam of Tolu.

Take of balsam of tolu, six ounces; white resin, sixteen ounces; sheep's suet, one and one-fourth ounces, or sufficient to make it soft enough, according to climate or season.

Bath.

The application of water, vapor, or hot air comes under the comprehensive term of bath. The daily use of water to the surface of the body, either by means of the sponge, spray, shower, or plunge bath, is one of the best and most easily applied hygienic rules. The bath may be cold, tepid, hot, simple, or medicated. A cold bath should always be followed by reaction, but if there is difficulty in obtaining this, great assistance will be afforded by the individual standing in a foot bath containing warm water during the process of drying the body. Sea

bathing is one of the most popular as well as one of the most invigorating hygienic measures that can be employed. The temperature of the various baths may be stated as follows: Tepid bath varies from 85° to 95°; warm bath ranges from 92° to 102°; hot bath from 106° to 110°. Baths may be either general or local; a bath is general when the whole body with the exception of the head is immersed. The vapor bath may be applied by a suitable apparatus when the patient is in bed, or by sitting in an inclosed space into which steam is freely admitted. Medicated baths are those into which chemical substances are introduced, such as carbonate of soda, salt, vinegar, or extract of pumuline. Mineral baths are usually employed in conjunction with the drinking of the various waters, such as chalybeate or iron water, sulphurous, gaseous, and saline. The Turkish bath is not only one of the most invigorating, but also one of the most enjoyable which we possess. After a day's fatigue it is wonderful how refreshing a Turkish bath is. It is, however, very necessary to use every precaution in the way of having the body cooled thoroughly before going again into the open air. Moreover, the Turkish bath possesses curative properties of no mean order, e. g. in many diseases such as neuralgia, rheumatism, dropsical swellings, chronic diseases of the lungs, and affections of the digestive organs. If disease, however, is present in any shape it would be well to take medical advice on the subject.

Bath—Warm

Should always be taken with a certain amount of discrimination, as it invariably has the effect of opening the pores of the skin, and rendering the system susceptible to cold. When a warm bath is taken for cleansing purposes alone, it should invariably be

followed by a cold sponge, so as to tone up the skin before drying. This form of bath is very popular as a remedy for colds, and in these circumstances it is followed by beneficial results. When, however, it is taken in this connection it would be well that the individual immediately goes to bed, and in this way keep up the action of the skin, which has been already induced by the bath.

Bathers—Directions for.

Avoid bathing within two hours after a meal.

Avoid bathing when exhausted by fatigue or from any other cause.

Avoid bathing when the body is cooling after perspiration, but:

Bathe when the body is warm, provided no time is lost in getting into the water.

Avoid chilling the body sitting or standing naked on the bank or in boats after having been in the water.

Avoid remaining too long in the water. Leave the water immediately when there is the slightest feeling of chilliness.

Avoid bathing altogether in the open air if, after having been a short time in the water, there is a sense of chilliness with numbness of the hands and feet.

The vigorous and strong may bathe early in the morning on an empty stomach.

The young and those who are weak, had better bathe three hours after a meal. The best time for such is from two to three hours after breakfast.

Those who are subject to attacks of giddiness and faintness, and those who suffer from palpitation and other sense of discomfort at the heart, should not bathe without first consulting their medical adviser.

Bath—The Shower.

The shower bath is most useful when there is any determination of the fluids to the head. Several other reasons may be stated for the superiority of the shower bath. The sudden contact of the water which in the ordinary cold bath is but momentary, may in the shower bath be prolonged, repeated, and modified at pleasure. The first shock is received on the head, and the blood is therefore impelled downwards; the shower bath descends in single streams and drops, and for this reason is more stimulating and pleasant than immersion in cold water. It is indeed an indefinite repetition of the one single effect produced by a plunge into cold water, and it is easily procured and readily adapted to the circumstances of the patient.

Bathing—Sea.

Sea bathing is very beneficial for the debilitated and physically run-down person. But certain precautions must be observed;

First, the duration of a cold bath should not be too prolonged, and it is to be laid down as an unexceptional rule, that a certain degree of vigor and power of reaction are essential in all by whom cold sea bathing is to be attempted. Thus it is not advisable that old people, the weak and delicate, including children, or such as are disposed to internal congestion or hemorrhage, should take a cold sea bath. General lassitude, with tendency to sleep, headache, or toothache, sensitiveness of the breast, increase of appetite, and constipation, are frequently results of a cold bath at the commencement of a course of sea bathing.

For bathing, therefore, in the open sea, it is desirable to prepare the delicate and unaccustomed by giving them a few preliminary tepid baths, which

produce a gently stimulating action on the skin, acting at the same time as a sedative to the nervous system; and by gradually lowering the temperature of these baths, the patient becomes strengthened to undergo the shock of a cold bath without risk, the severity of which very rapidly becomes diminished by the force of habit in bathing. The latter part of the month of July is the most suitable time to commence a course of cold sea bathing, the delicate and invalided having been previously inured by tepid baths.

In the morning, before ten o'clock, the temperature of the sea is at its lowest, and it is, therefore, at this time unsuited to the uninured and delicate, while it is most bracing and invigorating to the strong, and to such as can aid reaction of the circulation by the exercise of swimming. The sea reaches its maximum temperature at twelve o'clock, and continues the same until five; it is, therefore, during this time the delicate should bathe, the earlier the better, but in this, of course, persons must be guided by the tide.

The beneficial effects of sea bathing may largely be procured by throwing a large handful of salt in a bath of fresh water.

Beautiful—How to be.

Beauty has its foundations in physical well being. Health has its laws, which must be understood and obeyed, and these laws are clearly indicated in our physical and mental constitutions. They demand:

Proper food and drink in such quantities as the system is capable of readily assimilating.

Air and sunlight in abundance.

Sufficient exercise, rest, and sleep.

An agreeable temperature.

* Perfect cleanliness.

The whole secret of a full form and rosy cheeks lies in pure blood, manu-

factured from wholesome food, by healthy and active vital organs, oxygenized and vitalized in well expanded lungs, and kissed by the life-giving sunlight on the surface of the warm cheek. She who will have the color she covets on any other terms must buy it of the apothecary, and renew it every time she makes her toilet.

Bedrooms—Ventilation of.

The importance of ventilating bedrooms is a fact in which everybody is vitally interested, and which few properly appreciate. If two men are to occupy a bedroom during a night, let them step upon weighing scales as they retire, and then again in the morning, and they will find that their actual weight is at least a pound less in the morning. Frequently there will be a loss of two or more pounds, and the average loss throughout the year will be more than one pound; that is, during the night there is a loss of a pound of matter, which has gone off from their bodies, partly from the lungs, and partly through the pores of the skin. The escaped material is carbonic acid and decayed animal matter, or poisonous exhalations. (See Ventilation).

Bile.

Bile is the secretion of the liver, and aids in the assimilation of the fatty portions of the food. If the liver becomes defective in its action, then the biliary products are liable to accumulate in the system, and give rise to what is popularly termed biliousness, and not infrequently jaundice is the direct result. If this condition obtain the urine will frequently be observed to contain bile, while the alvine secretions are deficient in the biliary coloring matter. A frequent cause of what is popularly termed biliousness is constipation. The effects of this, however, are not entirely due to the accumula-

tion of bile in the system, but to a great extent to the fact that faecal absorption by the lower bowel takes place from the retained matter in the canal, thus contaminating the blood and giving rise to the dusky and sallow complexion which is directly consequent upon this process; hence a free purgative will often have the effect of relieving the symptoms which are present. If, however, the unhealthy condition is due to a sluggish action of the liver, then it will be necessary to add to the purgative one of the medicines which we know to act directly upon the liver itself, such as calomel, grey powder, blue pill, podophyllin, or taraxacum. Nitric acid has also a most beneficial effect when combined with a tonic when the liver is sluggish. All attempts, however, to correct biliary derangements should be combined with careful attention to diet.

Biliousness.

Persons subject to bilious attacks should be particularly careful to avoid excess in eating and drinking, and should especially avoid using those articles of food which, from experience, they find to disagree with them. Tea, coffee, chocolate, tobacco, alcoholic liquors, sugar, sweetened food, and grease in any shape, if avoided, will have a marked effect on a speedy recovery.

Another Treatment.—Squeeze the juice of a lime or small lemon into half a glass of water, then stir in a small teaspoonful of bicarbonate of potash, and drink while effervescing. It is also good for sick headache if taken in time.

Bites—Harvest Bug.

The most effectual remedy is benzine, which immediately kills the insect. A minute drop of tincture of iodine has the same effect. Many sufferers prevent the attacks by

sprinkling a little benzine over the stocking before walking.

Bites—Insect.

Such as bees, wasps, hornets, scorpions, etc., may be instantly relieved by the immediate and free application of spirits of hartshorn (ammonia) as a wash to the part bitten. The part may afterward be covered with a little sweet oil. (See Stings.)

Bites of Dogs.

Bites of dogs should, in every instance, be first of all thoroughly cleansed by means of warm water, the bleeding at the same time being encouraged, and afterwards the raw surface should be cauterized, either by means of lunar caustic or carbolic acid, and then dressed with carbolized oil or carbolized zinc ointment. (See Hydrophobia.)

Bites—Snake.

The poison inserted by the stings and bites of many venomous reptiles is so rapidly absorbed, and of so fatal a description, as frequently to occasion death before any remedy or antidote can be applied; and they are rendered yet more dangerous from the fact that these wounds are inflicted in parts of the country and world where precautionary measures are seldom thought of, and generally at times when people are least prepared to meet them.

Treatment.—In absence of any remedies, the first best plan to adopt on being bitten by any of the poisonous snakes is to wash off the place immediately; if possible, get the mouth to the spot, and forcibly suck out all the poison first applying a ligature above the wound as tightly as can be borne.

Another Treatment.—A remedy promulgated by the Smithsonian Institution is to take 30 grs. iodide potassium, 30 grs. iodine, 1 oz. water, to be applied externally to the wound

by saturating lint or batting—the same to be kept moist with the antidote until the cure be effected, which will be in one hour, and sometimes instantly.

Another Treatment.—An Australian physician has tried and recommends carbolic acid, diluted and administered internally every few minutes until recovery is certain.

Another Treatment.—Another Australian physician, Professor Halford, of Melbourne University, has discovered that if a proper amount of dilute ammonia be injected into the circulation of a patient suffering from snake-bite, the curative effect is usually sudden and startling, so that in many cases men have thus been brought back, as it were, by magic, from the very shadow of death. The method finally adopted by Professor Halford, after many experiments, and approved by his associates, is this: As soon as possible after a bite, which, without treatment, threatens life, thirty drops of the liquor ammoniæ (not liquid ammonia) in water—one part of the ammonia and two parts water—are injected, by a hypodermic syringe, directly into some superficial vein of the patient. Of course, none but a skilled or practised hand should undertake the operation, since the accident of injecting a small bubble of air with the solution might be fatal. There is no stage of exhaustion, so long as life remains, in which there is not hope of success by this remedy.

Bleeding—Haemorrhage.

When caused by an artery being divided or torn, may be known by the blood issuing out of the wound in leaps or jerks, and being of a bright scarlet color. If a vein is injured the blood is darker and flows continually. To arrest the latter, apply pressure by means of a compress and bandage.

To arrest arterial bleeding, get a piece of wood (part of a broom handle will do), and tie a piece of tape to one end of it; then tie a piece of tape loosely over the arm, and pass the other end of the wood under it; twist the stick round and round until the tape compresses the arm sufficiently to arrest the bleeding, and then confine the other end by tying the string around the arm. A compress made by enfold-ing a quarter in several folds of lint or linen, should, however, at first be placed under the tape and over the artery. If the bleeding is very obstinate, and it occurs in the arm, place a cork underneath the string, on the inside of the fleshy part, where the artery may be felt beating by any one; if in the leg, place the cork in the direction of a line drawn from the inner part of the knee towards the outer part of the groin. It is an excellent thing to accustom yourself to find out the position of these arteries, or, indeed, any that are superficial, and to explain to every person in your house where they are, and how to stop the bleeding. If a stick cannot be got, take a handkerchief, make a cord bandage of it, and tie a knot in the middle; the knot acts as a compress, and should be placed over the artery, while the two ends are to be tied around the thumb. Observe always to place the ligature between the wound and the heart. Putting your finger into a bleeding wound, and making pressure until a surgeon arrives, will generally stop violent bleeding.

Blindness

Or loss of sight may arise from accident to the cornea or lens, or from disorganization of the eyeball by accident or disease. It is not unfrequently due to disease arising independent of accident to the cornea, lens, vitreous humor, and retina. Blindness may also arise from disease of the

optic nerve or brain. As a rule, when this affection is due to disease the symptoms come on gradually, but when accident is the cause, as might be expected, they come on suddenly. When blindness is due to opacity of the lens itself, or cataract, it may be remedied by operation. Color blindness is a peculiar condition of the optic nerve which prevents it from being able to identify various colors; hence this affection precludes many individuals from engaging in occupations which render it necessary that colors presented to their vision be correctly identified, e. g. railroad signal-men. In blindness arising from any cause whatever it is essential that a competent medical practitioner be consulted and that without loss of time.

Blister—Blistering, or Counter Irritation.

The application of Cantharides plaster, although not so much in vogue at the present day as it was some years ago, is still a most useful remedy in certain inflammatory disorders of the internal organs and joints. As a rule, blisters are applied to too great a surface at once. A small blister will act quite as efficaciously as a larger one in many instances. The proper method is to allow the blister to remain on from eight to ten hours, then if it has not risen sufficiently to apply a piece of cotton wool, when, as a rule, a large vesicle filled with serum will appear, this should then be cut with a pair of scissors and all the dead cuticle removed so as to expose a raw surface. This raw surface should be dressed night and morning with prepared lard on a piece of lint, until it is healed.

Blood.

The blood, or vital fluid has been designated by some "The Life". This, however, is not the case, any more than

food is life, or oxygen is life, but certainly it is the medium of life. Its composition is a liquid in which float innumerable corpuscles, or globules. These are designated the red and white corpuscles, the red particles being the carriers of carbonic acid gas from the system towards the lungs and of oxygen from the lungs to the capillary vessels. The white corpuscles, or leucocytes, are the minute bodies which protect the animal economy against disease, and wage constant warfare against the numerous bacilli, microbes, bacteria, etc., which are the essential elements of zymotic disease. The chemical composition of blood is seventy-nine parts water, four albumen, fourteen globulin, together with certain salts in solution. When blood escapes from the body it separates into two portions, coagulum, which is generally known as blood clot, and serum. It is the serum of the blood which fills the vesicle or bleb of a blister. Blood-letting was at one time a much more popular remedy than it is at present. Fifty years ago it was carried to an absurd extent, and people were under the delusion that it was necessary to have a vein cut and a certain amount of blood abstracted from it at least twice a year. The process consisted in tying a bandage above the seat where the puncture in the vein was to be made, the vein was then cut by a sharp lancet and a certain amount of blood abstracted. The bandage which had been used to constrict the limb above the point of incision was generally utilized to stop the bleeding, which was readily staunched by pressure. Blood-letting still retains a certain amount of importance in the treatment of disease, especially where there is a plethoric condition of the system, or where a rupture has taken place of a blood-vessel within the brain. Other means besides the lancet were

employed in abstracting blood, such as cupping, leeching, and scarifying.

Blood—To Purify.

Sarsaparilla twelve ounces; guaiacum shavings, six ounces; wintergreen leaf, four ounces; sassafras root, four ounces; elder flowers, four ounces; yellow dock, three ounces; burdock root, four ounces; dandelion root, six ounces; bitter-sweet root, two ounces; all bruised; place these ingredients in a suitable vessel, and add one pint of alcohol, with water sufficient to cover the whole entirely. Set them in a moderately warm place for three or four days, pour off one pint of the tincture and set it aside, until you add water to the ingredients and boil to obtain the full strength; pour off, add more water and boil again; then boil the two waters down to one quart; strain, and add the liquor first poured off, and add two and one-half pounds crushed or coffee sugar, and simmer to form a syrup; when cool, bottle and seal up for use. Dose—one to two tablespoonfuls, according to the age and strength of the patient, one-half an hour before meals, and at bed time.

Blood—Spitting of.

Spitting of blood may be from two sources, viz., the lungs, when it is termed "haemoptysis"; or from the stomach, when it is named "haematemesis." In either case it is a symptom which requires very prompt attention. Until medical aid can be summoned, the patient should be kept perfectly quiet, and ice administered by the mouth, while eight grains of gallic acid mixed in half a wine-glassful of water to which twenty drops of elixir of vitriol have been added may be administered every two hours. If this does not succeed in arresting the hæmorrhage, three grains of ergotine combined with fifteen drops of liquid extract of hamamelis may be

administered with elixir of vitriol every four hours. If the hæmorrhage proceeds from the stomach, great care should be taken with regard to the food that is administered, and this should be composed of the most digestible substances that can be given, such as peptonized milk, beef juice, raw meats etc.

Blotched Face—Wash for.

Rose-water, three ounces; sulphate of zinc, one drachm. Mix. Wet the face with it, gently dry it, and then touch it over with cold cream, which also dry gently off.

Boil or Furuncle.

Boil or furuncle is a localised affection of the skin, produced by a microscopic organism which locates itself in the hair follicle and there propagates its species, giving rise in the process to suppuration in its immediate neighborhood. This affection, as a rule, can only develop when the system is below par. If the pustule which at first appears is touched with pure carbolic acid, as a rule the boil will be aborted, in consequence of the destructive effect of the acid upon the microbes which tend to produce it. At the same time great diligence should be observed in endeavoring to improve the general health. As a rule, the less a boil is meddled with the better. Permit it to come to a head if it has gone beyond the stage when it can be aborted. Boils frequently appear about the neck, as they are encouraged by the irritating effect of the collar ruffling the pustules, which otherwise would have died away without developing into the more painful affection. Oranges are to a certain extent beneficial where there is a tendency to boils. They should, however, be eaten in fairly large quantities, say six or eight a day. A carbuncle, as a rule, develops from

a boil which has been unduly irritated. It is well to poultice a boil for two or three days after it opens, and after these a stimulating salve. To prevent, eat simple food, and less of it, and avoid grease, sugar, and hot drinks.

Bowels—Acute Inflammation of.

This is an inflammation of the mucous membrane which lines them, as it is generally understood, but really involves more or less the whole substance of the bowel.

Symptoms.—The disease begins with a chill, and with uneasiness and slight griping pains, which increase in severity until they are intense and burning. Pressure aggravates the pain, which is greatest about the navel, but extends over the whole bowel. There is sickness at the stomach, and sometimes vomiting; loss of strength, costiveness, great anxiety, thirst, heat, and fever, dry, furred, and red tongue, and but little urine, with pain in passing it. The matters passed from the bowels are dark and fetid, and the whole belly is sore to the touch. The pulse is quick, hard, and small. If the stomach sympathizes but little with the disease, it indicates the seat of it to be in the lower portion of the bowels. The length of time, also, before drink and medicine are vomited up after being swallowed, is a pretty sure indication of the distance of the disease from the stomach. To discriminate this disease from colic, it is necessary to know that pressure produces pain, which it does not in colic; the pain never wholly ceases, as it does in colic; the knees are drawn up and the breathing short, or altered, as they are not in colic. In that case send for a doctor at once. (See Peritonitis for Comparison).

Treatment.—Hot fomentations, mustard poultices, soothing and quieting injections, cooling drinks,

such as slippery elm, flaxseed-tea, etc., with tincture of veratrum viride in full doses, or ten drops every hour, to keep up a free perspiration, will generally be all that is necessary. If the disease has been occasioned by the strangulation of an intestine, or by hernia, it is very unmanageable. The intestine may be disentangled by applying a large, dry cup, or, what is better, a number of small ones, but the tenderness of the abdomen makes this difficult.

Bowels—Chronic Inflammation of.

The signs of this disease are, a dull pain in the belly, the tongue bordered with red, abdomen either swelled or flat, skin dry and husky, cold extremities, small, frequent pulse, thirst, loss of flesh, low spirits, scanty urine, slimy discharges from the bowels from one to four times a day. The treatment commences with mustard poultices and hot fomentations. Cold compresses at night, the body well covered up in flannel, should be used if the bowels are very feverish. The warm bath twice a week, taking care not to get cold. The diet must be very simple and unstimulating.

Appendicitis.—Inflammation of the vermiform or worm-shaped part of the bowel located below and to the right of the navel. Soreness and pain in this region should receive the attention of a physician promptly. Treatment is similar to that of other inflammation of the bowels.

Bowels—To Regulate.

Useful Aperients.—In the springtime of the year the judicious use of aperient medicines is much to be commended.

Spring Aperients for Children.—An excellent medicine is sulphur and molasses, prepared by mixing one ounce and a half of sulphur, and half-an-

ounce of cream of tartar, with eight ounces of syrup; and according to the age of the child, giving from a small teaspoonful to a dessert-spoonful early in the morning, two or three times a week.

As this sometimes produces sickness the following may be used:

Take of powdered Rochelle salts one dram and a half, powdered jalap and powdered rhubarb, each fifteen grains; ginger, two grains; mix. Dose for a child above five years, one small teaspoonful; above ten years, a large teaspoonful; above fifteen years, half the whole, or two teaspoonfuls; and for a person above twenty, three teaspoonfuls, or the whole, as may be required by the habit of the person.

This medicine may be dissolved in warm water, mint or common tea. The powder can be kept for use in a wide-mouthed bottle, and be in readiness for any emergency. The druggist may be directed to treble or quadruple the quantities as convenient.

Aperient Pills.—To some adults, all liquid medicines produce such nausea that pills are the only form in which aperients can be exhibited; the following is a useful formula:

Take of compound rhubarb pill a drachm and one scruple, of powdered ipecacuanha ten grains, and of extract of hyoseyamus one scruple; mix, and beat into a mass, and divide into twenty-four pills; take one or two, or if of a very costive habit, three at bedtime.

For persons requiring a more powerful aperient, the same formula, with twenty grains of compound extract of colocynth will form a good purgative pill. The mass receiving this addition must be divided into thirty, instead of twenty-four pills.

Tonic Aperient.—The following will be found a useful medicine for persons of all ages. Epsom salts, one ounce,

diluted sulphuric acid, one drachm, infusion of quassia chips, half pint, compound tincture of rhubarb, two drachms. Dose, half a wineglassful twice a day.

Infants' Aperients.—The following may be used with safety for young children.

Take of rhubarb, five grains, magnesia, three grains, white sugar, a scruple, grey powder, five grains; mix. Dose, for an infant from twelve to eighteen months of age, from one-third to one-half of the whole.

A useful laxative for children is composed of calomel five grains, and sugar a scruple, made into five powders. Dose, half of one of these for a child from birth to one year, and a whole one from that age to three years.

Flour of Brimstone is a mild aperient in doses of about a quarter of an ounce; it is best taken in milk. Flour of brimstone, which is also called sublimed sulphur, is generally put up in ounce packages.

Brain

Is the large mass of soft tissue occupying the cranium or skull case. It is arranged in convolutions or coils, which are subdivided into the right and left hemispheres, while the brain itself is made up of cerebrum and cerebellum, the latter portion is in connection with the spinal cord. From the brain itself arise the most important nerves which govern the economy, such as the auditory, optic, pneumogastric, and phrenic. Brain concussion is the term applied to the condition which results from a severe blow when unconsciousness is produced without any organic mischief having been inflicted upon the brain itself. Brain compression is applied to an injury which displaces a portion of the skull or ruptures a blood-vessel within the brain substance, thereby causing compression of the organ. In either

of the foregoing affections it is highly desirable that competent medical aid be called in without delay.

Brain—Compression of.

This from any cause, such as apoplexy, or a piece of fractured bone pressing on it, involves loss of sensation. If you tickle the feet of the injured person he does not feel it. You cannot arouse him so as to get an answer. The pulse is slow and labored, the breathing deep, labored, and snorting, the pupils enlarged or unequal. Raise the head, loosen strings or tight things, and send for a surgeon. If one cannot be got at once, apply mustard poultices to the feet and thighs, leeches to the temples, and hot water to the feet, and purge the bowels.

Brain—Concussion of.

The surface of the body is cold and pale, and the pulse weak and small, the breathing slow and gentle, and the pupil of the eye generally contracted or small. You can get an answer by speaking loud, so as to arouse the patient. Give a little brandy and water, keep the place quiet, apply warmth, and do not raise the head too high. If you tickle the feet, the patient feels it. (See Concussion).

Brain—Inflammation of.

Acute and general inflammation of the brain has two stages.

The Stage of Excitement, in which there is intense and deep-seated pain in the head, extending over a large part of it, a feeling of tightness across the forehead, throbbing of the temporal arteries, a flushed face, projected eyes, looking wild and brilliant, contraction of the pupils, great shrinking from light and sound, violent delirium, want of sleep, general convulsions, a parched and dry skin, a quick and hard pulse, a white tongue,

thirst, nausea and vomiting, and constipation of the bowels.

The Stage of Collapse, in which there are indistinct mutterings, dull and perverted hearing and vision, double vision, the pupil from being contracted, expands largely and becomes motionless. twitchings of the muscles, tremors and palsy of some of the limbs, a ghastly and cadaverous countenance, cold sweats, profound coma, and death. The disease will not show all these symptoms in any one case. It runs a rapid course, causing death, sometimes, in twelve or twenty-four hours; or it may run two or three weeks.

Treatment.—The treatment should be very energetic, and early administered. The measures usually employed are cold water applications to the head; hot applications to the feet, and emptying the bowels by copious injections of water.

Brain—Enlargement of.

This chiefly affects children, and consists in an unnatural growth of the brain. The skull may grow with it and there be no symptoms of disease. The symptoms of enlargement of the brain are, dullness of intellect, indifference to external objects, irritable temper, inordinate appetite, giddiness, and habitual headache. Sometimes there are convulsions, epileptic fits, and idiocy. There is also a peculiar projection of the parietal bones in this disease.

Treatment.—As much as possible, repress all exercise of the mind. Do not suffer the child to go to school; but put it to the most active and muscular exercise in the open air. The moment there is any heat in the top of the head, apply cold water, ice, or cold, evaporating lotions. The diet should be very simple, bread and milk only, if, as the child grows up, the signs of the disease increase.

Brain—Softening of.

When this follows inflammation, the most marked symptom is the rigid contraction of the muscles which draw up the limbs; the hand may be clenched and pressed against the shoulder; or the heel drawn up to the hip. The other symptoms are—tingling and numbness in the ends of the fingers; perverted vision, or blindness; paralysis of one limb, or half the body; difficulty of answering questions; forgetfulness, making it difficult sometimes for the patient to remember his own name.

Breasts—Caked.

Boil a handful of camomile, and as much mallows in milk and water. Foment with it between two flannels, as hot as can be borne, every twelve hours. It also dissolves any knot or swelling in any part where there is no inflammation.

Breath.

By the breath many important diseases may be recognized, or at least suspicion of their presence aroused. If the breathing is rapid and excited we would infer that there is some impediment to the proper aeration of the blood. It then remains for us to ascertain whether this be due to the disease of the lung tissue, to some affection of the heart, or to a distended condition of the abdomen, which prevents the proper inflation of the lung at each inspiration. If, on the other hand, the breath is offensive, we may from this derive many indications of a variety of diseases, such as disease of the mucous membrane of the air passage, caries of the bones over which a portion of this mucous membrane is stretched, a disordered state of digestion, or of the several conditions of the blood which arise from impurities being present. Bad teeth and ulceration of the gums will also

give rise to an offensive breath. The greatest stench that can possibly impregnate the breath is that which is derived from gangrene of the lung. Whenever the breath is disagreeable to those in the neighborhood, it is desirable that medical aid be called in, and the exact cause ascertained and remedied.

Breath—Offensive.

From six to ten drops of the concentrated solution of chloride of soda, in a wineglassful of pure water, taken immediately after the ablutions of the morning are completed, will instantly sweeten the breath by disinfecting the stomach, which far from being injured, will be benefited by the medicine. If necessary, this may be repeated in the middle of the day. In some cases the odor arising from carious teeth is combined with that of the stomach. If the mouth is well rinsed with a teaspoonful of the solution of the chloride in a tumbler of water, the bad odor of the teeth will be removed.

Breath—For Perfuming.

Chocolate powder and ground coffee each one ounce, prepared charcoal one ounce, sugar one ounce, vanilla (pulverized with the sugar) one ounce, and sufficient isinglass to mix. Make into lozenges of any form, six or eight to be used every day to disinfect the breath.

Another.—Catechu, seven drachms, orris powder, forty grains, sugar, three ounces, oil of rosemary, (or of cloves peppermint or cinnamon), four drops. Mix, and roll flat on a marble slab, and cut into very small lozenges.

Another.—For disinfecting the breath. Dry chloride of lime, two drachms, sugar, eight ounces, and gum tragacanth, one drachm; carmine, two grains. Form into small lozenges.

Breath, (Fetid)—Lozenges for.

Gum catechu, 2 oz.; white sugar, 4 oz.; orris powder, 1 oz.; make them into paste with mucilage, and add a drop or two of neroli. One or two may be sucked at pleasure.

Bright's Disease—Milk in.

Dr. Arthur Scott Dunkin extols a skim-milk diet in this disease. "The first appreciable action," he says, "of skim-milk taken to the extent of six or seven pints daily, is that of a most energetic diuretic, a profuse flow of urine being rapidly produced. The effect of this, in Bright's disease, is to flush the uriniferous tubules, and to dislodge and wash out the concrete casts of diseased epithelial cells by which they are blocked up and distended. This emptying of the tubules relieves their pressure on the surrounding secondary capillaries; the blood begins to flow more freely through them; the distension of the primary Malpighian capillaries is relieved, less and less albumen escapes through their walls until the renal circulation is gradually restored, when it finally disappears from the urine. While this beneficial change is progressing, healthy epithelium is developed in the tubules, and the urinary excrement is withdrawn from the blood. In short, a healthy nutrition becomes re-established in the kidneys through the agency of milk, which, above all other substances, seems to exercise a controlling influence over this process."

Bronchitis.

Bronchitis is due to an inflamed condition of the lining membrane of the bronchial tubes. It is, as a rule, induced by cold, but may occur in the course of some acute diseases, such as typhoid fever. In the first stages of acute bronchitis the mucous membrane of the tubes is frequently so inflamed

as to give rise to intense spasm and pain in breathing. When the inflammation somewhat subsides and the membrane is permitted to secrete mucus, it does so in such excessive quantities as to cause a great amount of expectoration, which of course is always accompanied by an inveterate cough. Sometimes the inflammatory state of the tubes spreads downwards towards the minute capillary branches and even to the lung substance itself, when, of course, very serious symptoms may supervene. The proper treatment of bronchitis is the frequent application of mustard and linseed poultices to the back and front of the chest, each of which should be permitted to remain on for at least half an hour, to be followed by a fresh application in three or four hours. The patient should be confined to bed and well nourished. When there is difficulty in bringing up the expectoration, this may be assisted very materially by remedies such as ipecacuanha wine, antimonial wine, paregoric, squills, etc.

Another Treatment.—In mild cases give warm flaxseed or balm-tea, or hot lemonade—at the same time soaking the feet in warm water, and on retiring, placing bottles of hot water to the feet and sides to produce sweating. If the bowels be constipated, give rhubarb and magnesia, or salts and senna. In severe cases an active emetic is needed, followed by tincture of veratrum viride in full doses, so as to reduce the pulse. The room should be kept warm, and the air should be moist, if there is difficulty of breathing. A gentle perspiration should be kept up either by compound tincture of Virginia snake-root, by tincture of veratrum, or by frequent bathing of the surface. A mustard-plaster on the chest, and soles of the feet, is important; and the diet should be of barley-

water, toast-water, rice-water, or a solution of gum arabic. The cough may be managed by a mixture of tincture of lobelia, half an ounce; syrup of squills, half an ounce. Mix, and give twenty drops four or five times a day.

Brown's Bronchial Troches.

Take 1 lb. of pulverized extract of licorice, $1\frac{1}{2}$ lbs. of pulverized sugar, 4 oz. of pulverized cubebs, 4 oz. of pulverized gum arabic, and 1 oz. of pulverized extract of conium. Mix.

Bruises.

Bruises and contusions are produced by direct violence to the part affected. It is generally followed by considerable effusion of blood due to the rupture of the minute vessels at the seat of injury. This effused blood or ecchymosis, as it is termed, may become diffused over a considerably greater area than one would naturally suppose. Gravitation plays a considerable part in inducing this. The proper treatment of a bruise is to apply cold at once, so as to prevent as much effusion of blood as possible. The swelling which invariably results from a bruise is due to effusion of blood and serum into the injured part. This, however, will, as a rule, disappear after a few days if the skin has not been broken.

Another Treatment.—Take two drachms of scraped white soap, half-a-drachm of extract of henbane, and dissolve them by a gentle heat in six ounces of olive oil. Use for bruises and sprains but not glandular enlargements, which should never be rubbed.

Bruises, Cuts, etc.—Mitchell's, Balsam for.

Fenugreek seed and gum myrrh, of each, about 1 oz.; sassafras-root bark, a good handful; alcohol, 1 quart.

Put all into a bottle, and keep warm for 5 days.

Bruises or Swellings—Sisson's Ointment for.

Take of the best brandy $\frac{1}{2}$ a pint, turpentine 1 gill, camphor gum 1 ounce, beef's gall $\frac{1}{2}$ a pint, neats-foot oil 1 pint; mix. Excellent for bruises or swellings of long standing.

Bubo.

Bubo is the swelling of a gland which usually tends to suppurate. The inflammation which causes the bubo is, however, due to some sore in its immediate neighborhood, and which has a connection with the gland through lymphatic vessels. If the bubo suppurates it will be necessary to treat it as an ordinary abscess. Suppuration, however, may frequently be averted by applying a blister over the swelling, or painting the part with liniment of iodine once or twice a day.

Bunion.

Bunion is a swelling over a joint, usually that of the great toe. It is due to inflammation of the capsule of the joint, and is, as a rule, induced by continued pressure, possibly by wearing too tight boots. When a bunion threatens, the part should be well fomented at frequent intervals, and a proper fitting boot procured.

Another Treatment.—They may be checked in their early development by binding the joint with adhesive plaster and keeping it on as long as any uneasiness is felt. The bandaging should be perfect, and it might be well to extend it round the foot. An inflamed bunion should be poulticed, and larger shoes be worn. Iodin twelve grains; lard or spermaceti ointment, half an ounce, makes a capital ointment for bunions. It should be rubbed on gently twice or thrice a day.

Burns and Scalds.

Burns and scalds are inflicted by heat, the one from a dry substance, and the other from boiling water or oil. According to the length of the application of the super-heated substance so will the relative severity of the burn or scald be. If the burn or scald be extensive and severe, it may have very serious consequences, and in any case will produce a severe shock to the nervous system. The proper treatment is to apply an antiseptic in solution as quickly as possible, and cover the part with sheets of cotton wool. If the pain is very severe, the application of cold to the part affords great relief. Cold water, having in solution permanganate of potash, is a very useful application in the circumstances. Condyl's fluid, being a solution of permanganate of potash, may be employed in the proportion of a tablespoonful to a breakfast-cupful of water. Cotton or linen rags wrung out of this and applied to the surface at frequent intervals will prove very serviceable, not only in relieving the pain, but in promoting healing. Afterwards, when the pain has disappeared and the dead skin has been removed carbolicized zinc ointment (one part of carbolic acid to sixteen or twenty parts of oxide of zinc ointment) spread upon lint and applied to the sore will assist materially in the healing process.

Burns and Scalds—Remarks on.

We cannot too firmly impress upon the mind of the reader, that in either scalds or burns the first, best, and often the only remedies required, are sheets of wadding or cotton wool, and in default of these, violet powder, flour, magnesia, chalk, pure lard, or oil. The reason these several articles are employed is the same in each instance; namely, to exclude the air from the injured part; for if the air can be ef-

fectually shut out from the raw surface and care is taken not to expose the tender part till the new cuticle is formed, the cure may be safely left to nature. The moment a person is called to a case of scald or burn, he should cover the part with a sheet, or a portion of a sheet, of wadding, taking care not to break any blister that may have formed, or stay to remove any burnt clothes that may adhere to the surface, but as quickly as possible envelop every part of the injury from all access of the air, laying one or two more pieces of wadding on the first, so as effectually to guard the burn or scald from the irritation of the atmosphere; and if the article used is wool or cotton the same precaution, of adding more material where the surface is thinly covered, must be adopted; a light bandage finally securing all in their places. Any of the popular remedies recommended below may be employed when neither wool, cotton, nor wadding are to be procured, it being always remembered that that article which will best exclude the air from a burn or scald is the best, quickest, and least painful mode of treatment. And in this respect nothing has surpassed cotton wool, or wadding.

If the skin is much injured in burns spread some linen pretty thickly with chalk ointment, and lay over the part, and give the patient some brandy and water if much exhausted; then send for a medical man. If not much injured, and very painful, use the same ointment, or apply absorbent cotton dipped in carron-oil, or you may lay cloths dipped in ether over the parts, or cold lotions. Treat scalds in the same manner, or cover with scraped raw potato; but the chalk ointment is the best. In the absence of all these, cover the injured part with molasses, and dust it thickly over with flour. Lime water

beaten up with sweet oil is also an excellent application for burns.

Chalk Ointment.—Mix as much prepared chalk as you can into some lard, so as to form a thick ointment. Use as an application to burns and scalds.

Lime and Oil Ointment.—Take equal parts of common linseed oil and lime water and shake well. Use, when soaked on lint, for burns, scalds, sun-peelings, etc.

Burying Alive.

To know when death has really occurred and so prevent burying alive, hold a lighted candle to any portion of the body, a blister will soon rise; if on puncture it gives out a fluid substance, death has not taken place; if it emits air only, it is perfectly certain that life has become entirely extinct, for which we offer but one reason among others: in case of actual death the blood is congealed in a sense, there is no moisture, simply a little air, this being rarified under the flame, raises up the skin; if there is life, the flame causes an inflammation and nature, in her alarm, sends increased material there for repair, a kind of glairy fluid, and this being sent there in excess, causes the skin to rise; inability to feel the pulse or heart beat; cold skin, no dew on a bit of glass, none of these are conclusive, as there has been life, when none of these were observed.

Cancer.

Cancer is a malignant disease which may attack any portion of the human body. By some it is said to be hereditary, but it would appear to be essentially due to the presence of minute organisms, which attack a tissue reduced in its vitality by some distinct cause. There are several varieties of cancer, such as epithelial, scirrhus, and colloid. It is essentially a disease of mature years, rarely occurring

under thirty years of age, and being of such a nature that if left to itself, it is always fatal. This disorder is naturally dreaded by all. Its early recognition is of the utmost importance, as it is only in the first stages of its progress that it can be eradicated, and that for the most part only by a surgical operation. It usually commences as a hard, painless tumor of very small dimensions. It is more frequent in females than in males, and oftener attacks the breast than any other organ. Some trades are more liable to this disease than others. For example, all those working among paraffine oil are particularly liable to it, and in these individuals it generally attacks the scrotum. The skin, particularly that of the lip, is liable to it. Of the internal organs, the womb, the stomach, and the liver are frequently the seat of it. If it attacks any one part, the adjacent glands are almost certain to be affected sooner or later, hence the necessity of diagnosing the disease in its early stages, and removing the affected part before the surrounding tissues have become involved. Local applications, as a rule, are of little service, yet it is gratifying to know that recent experiments have proved that the disease may sometimes be arrested, if not completely cured, by the frequent application of ichthyol, and recently, inoculation with the virus of erysipelas has been said to be an antidote.

Carbolic Acid.

Carbolic acid is obtained by the destructive distillation of coal. It is in its crude state an oily-looking liquid, and resembles very much in taste a similar product derived from the destructive distillation of wood which is called creosote. Carbolic acid and creosote resemble each other very much, both chemically and in their

various properties. It is a potent antiseptic. They both have a destructive effect upon the life of minute organisms. Carbolie acid is a powerful sedative, and is applied internally to allay vomiting and sickness. As an external application it is largely employed as a lotion, the strength of which may vary from two to five per cent. When purified it forms long needle-shaped crystals, which dissolve very rapidly. It is frequently combined with soaps on account of its antiseptic properties. The fumes of carbolie acid in steam are employed in the treatment of whooping cough, and are frequently used as a disinfectant where contagious diseases are or have been present.

Carbuncle.

This is a large and painful boil, having a surface more flat than a boil, and greater inflammation. The constitutional symptoms are more severe. It generally appears on the thighs, back, or buttock, and goes through the same process as a boil, only discharging a much larger core. To treat, make an incision the full extent of the carbuncle, and stuff it with cotton saturated with pure carbolie acid, also painting the whole surface of the hardened mass with the acid. This will be followed with a sharp, burning sensation for a few minutes, after which the pain will subside completely and will not again appear. In the same way the insertion of the acid is to be renewed daily until a cure is effected.

Cascara Sagrada.

Cascara Sagrada is an American plant which possesses very valuable laxative and tonic properties. It is one of the safest laxatives that can possibly be prescribed, because it not only induces a healthy action of the bowels, but at the same time acts as a tonic to the muscular fibre of the

intestine whereby it enables it to act of its own accord. Then again, by relieving the lower bowel of its congested condition, it reacts upon the circulation of the liver, thereby giving it considerable help and enabling it to become restored to a healthier condition. The dose of the liquid extract of cascara is from 15 to 30 drops every night at bedtime. When combined with laudanum it is invaluable in diarrhoea and dysentery.

Catalepsy—Or Trance.

Is a very rare affection, and seems to be entirely nervous in its origin. Frequently when catalepsy exists the signs of life are so apparently absent that the individual may be looked upon as being dead, and doubtless burials have frequently taken place when the patient has been in this condition. If catalepsy is supposed to exist, ammonia should be applied to the nostrils, and ether or brandy injected under the skin, while friction should be applied to the surface of the body. Electricity is also a useful agent in these circumstances.

Catarrh

Literally means "a running through." It is characterized by an excessive secretion of mucus, and is, as a rule, a consequence of exposure to cold. It may attack any mucous surface, such as the air passages, the ear, the stomach and alimentary canal, the bladder, urinary passages, vagina, etc. What is commonly designated a cold in the head is the most characteristic example of catarrh. Some constitutions, principally those with a rheumatic tendency, are very liable to this disease, and in many instances we meet with people who are afflicted with the disorder in a chronic form, it being never altogether absent in their case. The treatment consists in endeavor-

ing to soothe the irritation of the canals of the mucous membrane affected and the administration of remedies which act upon the affected surfaces. Catarrh of the nasal mucous membrane is a premonitory symptom of several diseases, such as measles and influenza. In these circumstances it is usually accompanied by an irritable cough, which indicates that the irritation is not confined to the nasal tract alone. Catarrh of the air passages may frequently be aborted by the inhalation of steam impregnated with creasote, menthol, and eucalyptus.

Another Treatment.—Snuff strong salt water three times a day; draw up into the nostrils from the palm of the hand all that can be taken, then close the nostrils and retain the salt water as long as it can be endured. It is quite painful, but the cure depends wholly upon this. Cleanse the part affected thoroughly each time it is used.

Another Treatment.—Dr. Pallon, a French physician, has discovered that ammonia inhaled through the nose will cure catarrh. If the case is severe the inhalation should be continued until the sense of smell is restored, when it should cease for a minute, and then re-applied for a shorter period, and so repeated seven or eight times in the course of five minutes.

Another Treatment.—Take one part finely pulverized saltpetre, and mix with two parts white sugar reduced to flour. It must be snuffed up the nose a dozen times or more a day, according to the severity of the affection.

Chafing—Remedy for.

Among the annoyances to which persons of an obese physique are subject in hot weather, especially if they walk much, is chafing in those parts where a conglomeration of muscles

unite. Nothing is better, as a remedy and also as a preventive, than a lotion of alum in water. It should be applied with a soft linen or cotton rag at night, before retiring. A piece of alum as large as a hazel nut, dissolved in half a pint of water is sufficient. It will quickly heal excoriated skin and harden the unabraded cuticle. The use of this for years with the most beneficial results, is sufficient authority for trial of this simple remedy. It is good also for tender feet and soft corns.

Chapped Hands.

Chapped hands are the result of carelessness in drying the parts after washing when the weather is frosty. The employment of a soap containing an excess of alkali also tends to give rise to this affection. Where the tendency to this complaint is very pronounced, the application of vinolia cream or lanoline will prove helpful in warding off the affection. The greatest benefit, however, will be obtained by using, for toilet purposes, the soap known as paraffine soap, which has a most emollient effect upon the skin.

Balls, Camphor—For Chapped Hands, etc.

Spermaceti, white wax, each $\frac{3}{4}$ oz.; almond oil, 1 oz.; alkanet to color. Melt, strain, and add 3 drs. of powdered camphor.

Another.—Lard, wax, and almond or olive oil, equal parts, with a little powdered camphor. Used to rub over the hands after washing to prevent chaps.

Camphor Ice.

Spermaceti, $1\frac{1}{4}$ oz.; gum camphor, $\frac{3}{4}$ of an oz.; oil of sweet almonds, 4 teaspoonfuls; set on the stove in an earthenware dish till dissolved; heat just enough to dissolve it. While warm pour into small molds, then

paper, and put into tinfoil; used for chaps on hands and lips.

Chest—Development of the.

Chest, technically termed the Thorax, is the cavity of the body containing the heart, lungs, and large blood-vessels. The gullet and wind-pipe also pass through this cavity in a portion of their course. It is separated from the abdomen by the diaphragm, and its upper portion is bounded by the neck. The development of the chest may be cultivated to a large extent by gymnastic exercise.

Chest—Water in the.

Water in the chest or Hydro Thorax, is the result of pleurisy and where effusion into the pleural cavity has taken place.

Chicken-Pox.

Chicken-pox is a zymotic disease, and is highly infectious. It occurs principally among children, and only once during life. It may be preceded by slight feverishness, afterwards the eruption, composed of pimples with white heads, appears on the breast, shoulders, face, scalp, and body generally. It may also affect, and very frequently does, the tonsils and roof of the mouth. On the third or fourth day the white vesicle dries up, forming a crust which soon drops off. If the vesicles are not irritated they will pass away without leaving any mark, but as they are apt to be very itchy, the little patient by rubbing them may so irritate the part as to create a slight ulcer, which will result in a little indentation or pit. To obviate this irritability it is usual to apply a little carbolized oil to the itching part which will speedily allay the irritation. The great point in the treatment of chicken pox is to keep the patient indoors and to attend to the daily evacuation of the bowels.

Chilblain.

Chilblain is a very modified frost bite, whereby the skin becomes inflamed, irritable, and disagreeably itchy. It is more liable to occur in persons who are weakened by disease and in those who are of a rheumatic constitution. The best application for chilblains is carbolized zinc ointment in the proportion of one part of carbolic acid to sixteen or twenty of the ointment. The application of tincture of iodine has also been recommended.

Another Treatment.—Sweet oil, one pint; Venice turpentine, three ounces; hog's-lard, half-a-pound, beeswax, three ounces. Put all into a porcelain kettle over a slow fire, and stir it with a wooden spoon till the beeswax is all melted, and the ingredients simmer. It is fit for use as soon as cold, but the longer it is kept the better it will be. It must be spread very thin on soft rag, or (for chaps or cracks) rubbed on the hands when you go to bed.

Chilblain Liniment.

One ounce of camphorated spirit of wine, $\frac{1}{2}$ an ounce of the subacetate of lead, (liquor). Mix, and apply 3 or 4 times a day.

Chilblains—Lotion for Itching.

Take hydrochloric acid 1 part, and water 8 parts. Mix. Apply on going to bed. This must not be used if the skin is broken.

Childhood.

Childhood is always an anxious period to parents, in consequence of the inability of the infant to indicate the symptoms from which it may be suffering. One thing may be accepted as an axiom, that if a child is fretful and cross there is some cause at the root of this. As a rule, this will be found to exist in the digestive organs,

and is frequently caused by pains due to flatulence. These may be frequently allayed by a dose of castor oil or the administration of a little carminative combined with a small dose of bicarbonate of soda. The child should be bathed regularly night and morning, and always sponged after an evacuation of the bowels or passing of urine, the parts in the immediate neighborhood after being thoroughly dried should be dusted with oxide of zinc powder, so as to prevent scalding at the folds of the joints. It is always better that an infant should sleep in a cot, and not with the mother or nurse. If this advice is carried out it will be found that the sleep will not only be more prolonged, but much less disturbed than it would otherwise be. The nursery should always be well aired, but free from draughts. The most natural food of the infant is certainly the mother's milk, and if possible every mother should suckle her own infant, but if she is unable to do this, then a wet nurse should be procured. Should it be preferred by the mother to resort to artificial food for the infant, great care should be exercised in selecting this, as there are so many different kinds of infants' food in the market which might constitute a difficulty in making a proper selection.

Children—Care of.

Dress children warmly. By every consideration, protect the extremities well. The circulation should be invited to the extremities; warmth does that; cold repels it. It is at the hands and feet we begin to die. Those who have cold hands and feet are never well. Plenty of warmth, plenty of substantial food and ripe fruits, and plenty of out-door joyous exercise, would save millions of children annually.

Children—Diseases of.

Children might be saved a great many kinds of disease, if proper care was given them. By this I do not mean that mothers should wear themselves out in waiting upon them—that is what they do now—but that they should give them the right kind of care.

In the first place, their young lungs must have pure air, and enough of it. Their sleeping-rooms should be well ventilated, and they should be out of doors as much as possible. The next thing is to clothe them warmly, so that they can be out of doors, safely and comfortably. Put flannel next their skin; let them wear high dresses, moderately long; woolen stockings and worsted drawers in winter, and cotton in summer; thick shoes, long sleeves, etc. If they do not look quite so pretty for it now, they will repay you in good looks and good health when they are older.

Keep their skin clean and active, by frequent baths; not exposing them to the air immediately after bathing, unless it is to have a good run. Give them plain, simple, nourishing food, plenty of it; but not too much, nor at irregular times. Stuffed children always have a bowel complaint, as they must. Give them plenty of sleep, too, and have them go to bed always by a certain early hour. Treat them kindly but firmly. Do not disturb their digestion with cross humors, nor allow them to do so themselves. Only by habits of obedience can they be made either healthy or good. Do not give young children tea, or coffee, or liquors. They do not need them, and are better without them.

Children—Signs of Disease in.

In the case of a baby not yet able to talk, it must cry when it is ill. The colic makes a baby cry loud, long, and

passionately, and shed tears—stopping for a moment and beginning again.

If the chest is affected, it gives one sharp cry breaking off immediately, as if crying hurt it.

If the head is affected, it cries in sharp, piercing shrieks, with low moans and wails between. Or there may be quiet dozing and starting between.

It is easy enough to perceive, where a child is attacked by disease, that some change has taken place; for either its skin will be dry and hot, its appetite gone; it is stupidly sleepy, or fretful and crying; it is thirsty, or pale and languid, or in some way betrays that something is wrong. When a child vomits, or has a diarrhoea, or is costive and feverish, it is owing to some derangement, and needs attention. But these various symptoms may continue for a day or two before the nature of the disease can be determined. A warm bath, warm drinks, etc., can do no harm, and may determine the case. On coming out of the bath, and being well rubbed with the hand, the skin will show symptoms of rash, if it is a skin disease which has commenced. By the appearance of the rash, the nature of the disease can be learned. Measles are in patches, dark-red, and come out first about the face. If scarlet fever is impending, the skin will look a deep pink all over the body, though most so about the neck and face. Chickenpox shows fever, but not so much running at the nose, and appearances of cold, as in measles, nor is there as much of a cough. Besides, the spots are smaller, and do not run much together, and are more diffused over the whole surface of the skin; and enlarge into little blisters in a day or two.

Choking From Fish Bone.

When a person has a fish bone in the throat, insert the forefinger, press upon the root of the tongue, so as to induce vomiting; if this does not do, let him swallow a large piece of potato or soft bread; and if these fail, give a mustard emetic.

Cholera.

Cholera, properly so called, is of Asiatic origin. Fortunately the advance in sanitary science has practically stamped this disease out of existence in our country. It is, like every epidemic disease, due to the development of a microscopic organism within the body. This has been identified by bacteriologists, and has the form of a comma, hence it is called the comma bacillus. It takes possession of the alimentary canal, where it produces its virulent symptoms. These are very violent in their nature and develop very rapidly. The symptoms commence with diarrhoea, a sinking sensation in the stomach; the diarrhoea rapidly develops in virulence and the stools become very frequent, and accompanied by severe cramps of the limbs and abdomen. The character of the stools is very distinctive of the disease, and resemble thin gruel or rice water. As the disease advances the surface becomes cold, livid, and bathed in profuse perspiration; this is called the collapse stage, and frequently terminates fatally. The treatment consists in keeping up the animal heat and endeavoring to arrest the great drain of the vital fluids that takes place. Opium has always held a prominent position in the treatment of this malignant disorder, but probably the most efficacious means is the frequent administration of antiseptic remedies, the most useful in this disorder being naphthaline. Cholera, although epidemic in its nature, is not necessarily

infectious, but is generally due to the imbibing of fluids containing the germs of the disease.

Cholera—Special Rules for the Prevention of.

It is impossible to urge too strongly the necessity, in all cases of cholera, of instant recourse to medical aid, and also in every form and variety of indisposition; for all diseases are found to merge in the dominant disease.

Let immediate relief be sought under disorder of the bowels especially, however slight. The invasion of cholera may thus be readily prevented.

Let every impurity, animal and vegetable, be quickly removed to a distance from the habitation, such as slaughterhouses, pig-sties, cesspools, necessaries, and all other domestic nuisances.

Let all unecovered drains be carefully and frequently cleansed.

Let the grounds in and around the habitation be drained, so as effectually to carry off moisture of every kind.

Let all partitions be removed from within and without habitations, which unnecessarily impede ventilation.

Let every room be daily thrown open for the admission of fresh air; this should be done about noon, when the atmosphere is most likely to be dry.

Let dry scrubbing be used in domestic cleansing in place of water cleansing.

Let excessive fatigue, and exposure to damp and cold, especially during the night, be avoided.

Let the use of cold drinks and acid liquors, especially under fatigue, be avoided, or when the body is heated.

Let the use of cold acid fruits and vegetables be avoided.

Let excess in the use of ardent and fermented liquors and tobacco be avoided.

Let a poor diet, and the use of impure water in cooking, or for drinking, be avoided.

Let the wearing of wet and insufficient clothes be avoided.

Let a flannel or woollen belt be worn round the abdomen.

Let personal cleanliness be carefully observed.

Let every cause tending to depress the moral and physical energies be carefully avoided.

Let exposure to extremes of heat and cold be avoided.

Let crowding of persons within houses and apartments be avoided.

Let sleeping in low or damp rooms be avoided.

Let fires be kept up during the night in sleeping or adjoining apartments, the night being the period of most danger from attack, especially under exposure to cold or damp.

Let all bedding and clothing be daily exposed during the winter and spring to the fire, and in summer to the heat of the sun.

Let the dead be buried in places remote from the habitations of the living. By the timely adoption of simple means such as these, cholera, or other epidemic, will be made to lose its venom.

Cholera Morbus.

This disease begins with sickness and distress at the stomach, succeeded by violent gripings, with vomiting of thin, dirty-yellowish, whitish, or greenish fluid, with discharges from the bowels similar to that vomited. The nausea and distress continue between the vomiting and purging, and the pain at times is intense. The pulse is rapid, soon be-

coming small and feeble, the tongue dry, the urine high-colored, and there is much thirst, though no drink can be retained on the stomach.

Treatment.—Apply a large mustard-poultice over the stomach and liver. Give large drafts of warm teas, by which means the stomach will be cleansed of all its solid contents. Every half-hour give tablespoonful doses of the compound powder of rhubarb and potassa, until the vomiting is checked. Warm injections must be given frequently, and hot bricks applied to the feet, while the whole body should be swathed in warm flannels. To get up a warmth of the body and the stomach, is, in fact, the most important thing in this disease. Hot brandy, in which is a dose of Cayenne, is excellent, to quiet the vomiting and griping. A few drops of laudanum in the injections may be given, if the pain is excessive; but generally it is not needed.

Chorea, or St. Vitus's Dance.

Chorea, or St. Vitus's dance, is essentially a disease of a rheumatic origin. It is characterized by involuntary movements of the voluntary muscles, and is practically a disease of childhood. It is generally consequent upon a constipated condition of the bowels occurring in patients with a rheumatic constitution. During the progress of the disease the patient does not appear to have any control over the movements of his limbs and face. It is frequently followed by disease of the valves of the heart, resembling in this peculiarity the sequelæ of rheumatism. The treatment consists in procuring a daily evacuation of the bowels and giving nerve tonics, the best of which probably is the valerianate of zinc and arsenic combined with the extract of conium, which tends to soothe the irritable condition of, and give tone

to, the nervous system. Bromide of potassium has also been employed as a remedy, but this only acts temporarily, and, moreover, it has to a certain extent, a depressing effect which is not desirable when chorea is present.

Chloroform—To prevent Death from.

Experiments on inferior animals show that they may be restored from apparent death from chloroform by the continuous galvanic current, the negative pole being put into the mouth and the positive pole in the rectum. In some cases the animal was left for two minutes in a state of apparent death and then restored.

Cold.

Cold may be said to be simply the absence of heat. The extraction of heat from the body by exposure to cold often leads to most disastrous results, causing a depression of the vitality and susceptibility to disease. Many diseases which are directly attributed to cold are only due to this agent in a secondary degree, just as the inhalation of impure gases renders the system susceptible to typhoid fever, so does exposure to cold act in inducing diseases such as rheumatism, pneumonia, catarrh, and congestion of the various organs—that is to say, the organisms which are intrinsically the cause of these diseases are enabled to gain a footing within the system in consequence of the lowered condition of the vitality resulting from exposure, when, if this had not occurred, the system would have been able to withstand and conquer the disease-producing entities.

Cold—To Avoid Catching.

Accustom yourself to the use of sponging with cold water every morning on first getting out of bed. It should be followed with a good deal

of rubbing with a rough towel. It has considerable effect in giving tone to the skin, and maintaining a proper action in it, and thus proves a safeguard to the injurious influence of cold and sudden changes of temperature.

Another way to avoid catching colds is to pour a glassful of water on the back of the neck when arising in the morning. Those who have followed these methods heartily recommend them.

Cold—To Put Back.

So soon as you feel that you are taking a cold—and you will generally have notice before it amounts to much—place your feet into water made as warm as you can bear and keep them there about ten minutes. Change them, then, into a vessel containing cold water—if ice-water, all the better—and hold them in it about one minute; after which wipe dry and put on warm stockings.

Cold—To Cure.

Before retiring soak the feet in mustard water as hot as can be endured, and to bear it at any great temperature, the feet should at first be plunged in a pail half full of lukewarm water, adding by degrees very hot water until the desired heat is arrived at; of course the upper part of the body and the knees should be well protected with a blanket. On getting into bed take a hot camphor sling. Take with one tablespoonful of white sugar twelve or fourteen drops of strong spirits of camphor, with two tablespoonfuls of boiling water. Rub the bridge of the nose between the eyes with a little oil. Cuddle in bed and sleep it off.

Cold and Cough Mixture.

Solution of acetate of ammonia, two ounces; ipecacuanha wine, two drachms; solution of muriate of mor-

phine, half-a-drachm; molasses, four drachms; water, add eight ounces. Two tablespoonfuls to be taken three times a day.

Cherry Pectoral, Ayer's — For Colds and Coughs.

Take 4 grains of acetate of morphia, 2 fluid drachms of tincture of blood-root, 3 fluid drachms each of antimonial wine and wine of ipecacuanha, and 3 fluid ounces of syrup of wild cherry. Mix.

Cold on Chest.

A piece of flannel wrung out of boiling water and sprinkled with turpentine laid on the chest, gives great relief.

Cold in the Head, or Catarrh.

Cold in the head, or Catarrh, is due to congestion of the mucous membrane, and hyper-secretion is the result. It is an infectious disease, but does not in every instance necessarily arise from exposure to infection; it is frequently the result of a chill, or of sitting or standing for an unduly long period in a draught of cold air. Those of a rheumatic temperament are more susceptible to this affection than those who are free from this tendency. When a cold in the head is threatening, the best method of cutting it short is to inhale such substances as creosote or menthol along with the vapor of steam. The steam so impregnated acts as an antiseptic, and therefore is a destructive agent to the minute organisms which keep up the irritation of the mucous surfaces. Frequently cold in the head, especially in young children, spreads by continuity of tissue into the bronchial tubes and even into the minute capillary tubes which ramify in the lung substance, giving rise to what is popularly termed capillary bronchitis and pneumonia.

Colic.

Colic is a painful spasmodic contraction of the muscular coat of the bowels, particularly that of the large bowel or colon. It may be caused either by a large accumulation of wind or the presence of some irritating matter such as undigested food or hardened fæces, too powerful purgative or poison, as well as by exposure to cold. The characteristic symptoms of colic is pain coming on in paroxysms which last for a shorter or longer period, and then gradually pass away, only, however, to recur within a short time. The pain is frequently relieved by firm pressure over the part, and in this it differs from inflammation, which on the other hand, is aggravated by pressure. The seat of the pain is usually in the region of the navel. If the pain is due to flatulent distension this will frequently be relieved by raising the buttocks considerably above the level of the head and by the injection of hot water. If this is not practicable then the application of hot fomentations, freely sprinkled with laudanum, over the abdomen, will prove of great service. Internally, the combination of nepenthe, essence of ginger, chloric ether, and tincture of cardamoms will act most efficaciously as an anodyne.

Colic—Bilious.

This is a dangerous disease. There is griping, twisting, tearing pain, about the navel or sometimes over the belly. It comes and goes by paroxysms. Sometimes the abdomen is drawn in, at other times swelled out, and stretched like a drumhead. At first, the pain is relieved by pressure, but after a time the belly grows tender to the touch. There is thirst and heat, and a discharge of bilious matter from the stomach. In the worst cases, the

pulse is small, the face pale, the features shrunk, and the whole body covered with a cold sweat. It is caused by irritating articles taken into the stomach, vitiated bile, long exposure to cold, torpid liver and skin, great unnatural heat, etc.

Treatment.—Administer an active purgative injection, or enema, immediately. Give a mixture of pulverized camphor, four grains; Cayenne, twelve grains; white sugar, one scruple. This, divided into four powders, and given once in fifteen minutes, will relieve the pain—at the same time mustard-poultice should be laid upon the belly. The sickness of stomach may be allayed by hot drafts over the stomach, in which are a few drops of laudanum. Also on the feet. Croton oil, one drop done up in a crumb of bread, will often purge successfully; or castor oil and spirits of turpentine, equal parts, in two table-spoonful doses, may be used before trying the other. A warm bath is good, and bottles filled with hot water, placed at the feet and sides, to promote perspiration.

Colic—Wind.

This is a severe and distressing pain in the bowels, sometimes a stoppage, and swelling about the pit of the stomach and navel. The complaint may be caused by weakness in the digestive organs, by indigestible food, unripe fruit, or constipation.

Treatment.—If the pain is caused by having eaten anything indigestible, an emetic should be immediately taken. If this does not bring relief, a dose of salts, or sweet tincture of rhubarb may. If there is no sickness at the stomach, a little essence of peppermint in water may be sufficient to expel the wind and give relief. If there be constipation, and continued pain, a stimulating injection should be given.

Colic—Lead

Is a disease to which painters, and workers in red and white lead, are subject, causing severe pains, tedious sickness, and often death. The disease is partially owing perhaps to breathing the fumes, but mainly from particles taken into the stomach by the food which is handled. Workmen can effect a total exemption from the disease by attending rigidly to three things.

Keep the finger nails trimmed closely so as to prevent particles of lead from collecting under them and transference to the bread in eating it.

Wash the hands well with soap and water, and rinse the mouth before eating.

Drink half a pint of sweet milk at each meal to antagonize the influence of any particles of lead which may find their way into the stomach. It has been found in thousands of cases that an habitual attention to these things secures an entire exemption from lead colic.

Colic—Paregoric for.

Best opium, $\frac{1}{2}$ a drachm; dissolve it in about two tablespoons of boiling water; then add benzoic acid, $\frac{1}{2}$ a drachm, oil of aniseed, $\frac{3}{4}$ of a fluid drachm; clarified honey, one ounce; camphorgum, 1 scruple; of 76 per cent alcohol, 11 fluid ounces; distilled water 4 fluid ounces; macerate (keep warm) for two weeks. Dose, for children, five to twenty drops; adults, one to two teaspoons.

Colic—Soothing Syrup for.

Take one pound of honey, add two tablespoonfuls of paregoric, and the same of oil of aniseed; add enough water to make a thick syrup, and bottle. Dose, for children teething; a teaspoonful occasionally.

Complexion.

Complexion may be divided into fair and dark, but it may vary between

these two points. Again we may have the pallid and florid complexion, the latter being due to an excess of blood, and the other to a deficiency of it, or an absence of the coloring matter of the blood. If, however, the individual is in bad health, the complexion frequently gives indication of the cause—e. g. in constipation and biliousness the complexion becomes sallow, or dusky, this being due to the fact that the blood is contaminated by the absorption of some foetid or excrementitious matter absorbed from the bowel. If the complexion is yellow, and conjoined with the yellow coloration of the whites of the eye, then we may conclude that there is some deficient excretion of bile, or in other words, that the individual is suffering from jaundice. Frequently there is a dark rim around the eyes, combined with a dusky coloration of the skin; this is generally associated with constipation. In other instances the face has a waxy appearance, when it is suggestive of kidney disease. If the skin is pallid and this pallor is conjoined with a loss of color in the mucous membrane of the eyelids, nostrils, lips, and gums, the cause is usually anæmia. In short, from the complexion a considerable amount of information may frequently be gathered which will guide the physician very much in his endeavors to come to a correct diagnosis. A choice of soap is also of great importance in maintaining a healthy complexion, as; if the soap contains an excess of alkali, it acts as an irritant to the skin, and conveys to it a rough and unhealthy appearance. Careful ablution and the use of good Castile soap with its emollient properties, tend greatly to clear and brighten the complexion.

Complexion—To Preserve.

Plenty of out-door exercise, a well regulated appetite, and a cheerful mind are the best defence against the

"green and yellow" hue, which gradually creeps over the roses on the cheeks of so many of our country-women.

Complexion—A Good Soap for.

Take a quarter of a pound of Castile soap, slice it down into a glass jar, and pour upon it two quarts of alcohol; place the jar in a vessel of water at such a heat as will cause the spirits to boil, when the soap will soon dissolve; then put the jar, closely covered, in a warm place until the liquor is clarified; take off any scum that may appear on the surface, and pour it carefully from the dregs, then put it into a jar again, and place it in a vessel of hot water, distilling all the spirits that may arise; dry the remaining mass in the air for a few days, when a white, transparent soap will be obtained, free from all alkaline impurities, and perfectly void of smell. It is much used for softening and beautifying the skin.

Complexion—Wash for.

Take two gallons of strong soap-suds, add to this one pint of pure alcohol, and a quarter of an ounce of rosemary. Mix these well together, and they are fit for application. It should be applied with a linen rag.

Another article applied in the same way, and easily obtained, is horse-radish, grated into sweet milk; which will be fit for use in about seven or eight hours.

Cold Cream.

Take white wax, one ounce; spermaceti, one ounce; oil of almonds, one-fourth pint. Melt, pour the mixture into a Wedgewood mortar or earthenware jar which has been heated by being immersed in hot water; add gradually rose-water, four fluid ounces, and stir until an emulsion is formed and afterward until the whole is nearly cold. Put in pots. It may be perfumed with bergamot or lavender.

Cold Cream—Home Made.

Procure perfectly fresh lard, which has never been touched by salt; wash it thoroughly in water freshly drawn, and do this in three different waters; then leave it to soak in fresh water, and in a cool shade for twenty-four hours. Then wash it once more, and beat until it becomes a cream, in as much rose-water of the stronger sort as it will absorb, during the process of beating. When finished, the rose-water will have penetrated every part, and should also stand in little pools here and there on the soft and porous-like surface.

Concussion.

Is the effect of a severe blow upon the head or spine. In concussion of the brain the consequences are alarming at first, but usually they are of a transient nature and soon pass off. The immediate effects of concussion are insensibility, frequently followed by vomiting. The treatment of such cases consists in endeavoring to remove the shock which is the immediate cause of the attack. This is best done by the administration of stimulants, such as ammonia, brandy or whisky, and the application of ammonia to the nostrils and cold to the head and face; immediately following these, the application of mustard and hot water to the feet and over the stomach. (See "Brain—Concussion of.")

Congestion.

Congestion means an overloaded condition of the blood-vessels in any one part. This may lead to effusion of the liquid portion of the blood into the tissues immediately surrounding the seat of the disease. In the popular mind it is usually synonymous with inflammation, and is marked by a sensation of heat, pain, and swelling of the part—e.g. congestion of the throat, of the lungs, or the kidneys is due to inflammatory action in these organs.

The proper treatment in such circumstances is to endeavor to counteract the morbid process by means of poultices, blisters, or sometimes even cold applications, and, at the same time, reduce the temperature of the body by suitable antipyretics.

Constipation or Costiveness.

Constipation or costiveness is one of the most frequent predisposing causes of diseases. This can be readily understood when it is pointed out that if the fecal matter is permitted to remain for a lengthened period within the colon, or lower bowel, absorption of the fluid constituents of the feces rapidly takes place, and has the effect of contaminating the blood and producing a form of blood poisoning. In consequence of this, the functions of the body at large become more or less prostrated, while, at the same time, the quality of the blood becomes deteriorated. The consequences of constipation are very varied—e. g. it renders the individual more susceptible to infectious disease; secondly, it interferes with digestion; thirdly, it interrupts the excreting power of different organs, such as the liver and kidneys; and lastly, it has a most pernicious effect upon the nervous apparatus, causing depression of spirits, irritability of temper, disturbed and unrefreshing sleep, and an undue sensibility to cold.

Constipation—Remedies for.

Bitters, Cathartic and Tonic.—Best rye whiskey, and water, of each 1 quart. Best unground Peruvian bark, colombo root and prickly ash berries, of each 2 ounces; prickly ash, black cherry and poplar barks, of each 1 oz.; pokeroot, mandrake-root, and cloves, of each $\frac{1}{2}$ an ounce; all to be the dry articles, and all to be pulverized before they are put into the spirits; they should be well shaken every day for a week, by which time the bitters

will be ready for use. Dose—1 to 2 tablespoonfuls at morning and evening meals.

Cathartic Syrup.—Best senna leaf, 1 oz.; butternut, the inner bark of the root, dried and bruised, 2 oz.; peppermint leaf, 1 oz.; fennel seed, 1 oz.; alcohol, 1 pint; water, 2 pints; sugar, 2 lbs.; put all into the spirit and water except the sugar, and let it stand 2 weeks, then strain, pressing out from the dregs, adding the sugar, and simmering a few minutes only, to form the syrup. If it should cause griping in any case, increase the fennel seed and peppermint leaf. Dose—1 tablespoonful, once a day, or less often, if the bowels become too loose.

Mandrake, or May Apple.—This is an excellent purgative, in doses of from 10 to 30 grains, or double that quantity, in a gill of water; or equal quantities of the mandrake juice and molasses may be mixed, and a tablespoonful taken every hour or two till it operates. The Indians gather the root in autumn, when the leaves turn yellow, dry it in the shade, and pulverize it for use.

Pill of Aloes, Compound.—Socotrine aloes in powder 1 ounce, extract of gentian $\frac{1}{2}$ ounce, oil of caraways 40 drops, and syrup a sufficient quantity. Beat together to a pill mass. Purgative, stomachic. Used in habitual costiveness. Dose—5 to 20 grains. Aloes are more easily powdered by adding 2 or 3 drops of olive oil to each ounce.

Pill of Aloes with Myrrh.—Powdered Socotrine aloes $\frac{1}{2}$ ounce, saffron, powdered myrrh and soft soap, of each 2 drachms, and of syrup a sufficient quantity. Beat together to a pill mass. Purgative emenagogue. Used in chlorosis and amenorrhea. Dose—5 to 15 grains.

Essence of Peppermint.—Oil of peppermint 1 ounce; rectified spirit 1

ounce, carbonate of magnesia half an ounce, water 7 ounces. Mix the oil and magnesia intimately, put them in the filter, pour on the spirit, and afterwards the water. Mixes with water; it may be filtered again if not quite clear.

Pills, Cathartic.—Aloes and gamboge of each 1 ounce, mandrake and blood-root with gum myrrh, of each $\frac{1}{4}$ ounce; gum camphor and Cayenne of each $1\frac{1}{2}$ drachms, and ginger 4 ounces; all to be finely pulverized and thoroughly mixed with thick mucilage (made by putting a little water upon equal quantities of gum arabic and gum tragacanth) into pill mass; then formed into common-sized pills. Dose—2 to 4 pills, according to the robustness of the patient.

Powders, Seidlitz.—Rochelle salts, two drams; bicarbonate of soda, two scruples; put these into a blue paper, and put tartaric acid thirty-five grains into a white paper. To use, put each into different tumblers, fill $\frac{1}{8}$ with water, and put a little loaf sugar in with the acid, then pour together and drink. This is an excellent remedy.

Constipation, Habitual—Buttermilk for.

Buttermilk—the good old-fashioned buttermilk—is an agent of superior digestibility. It is, as medical men would say, a true milk peptone—that is, milk already partially digested. It contains more nourishment than most people are aware of. The coagulation of the coagulable portion being loose and flaky, and not of that firm, indigestible nature which is the result of the action of the gastric juice of the stomach upon sweet milk. It is a laxative and diuretic. It is good for habitual constipation and of great advantage in some kidney troubles. It resembles koumiss in its nature, and with the exception of that article, it is

the most refreshing and digestible of all milk products.

Constipation—Other Remedies for.

Castor Oil Enema.—Mix two ounces of castor oil with one drachm of starch, then rub them together, and add fourteen ounces of thin gruel. Use as a purgative injection.

Laxative Enema.—Take two ounces of Epsom salts and dissolve in three-quarters of a pint of gruel, or thin broth, with an ounce of olive oil.

Sulphur and Potash.—Mix one drachm of sulphur with four scruples of bicarbonate of potash, and two scruples of nitre. Dose, from half a drachm to one drachm. Use as a purgative, diuretic, and refrigerant.

Senna Confection, No. 1.—Take of senna, powdered, four ounces; figs, half a pound; cassia pulp, tamarind pulp, and the pulp of prunes, each four ounces; coriander seeds, powdered, two ounces; liquorice root, one ounce and a half; sugar, one pound and a quarter; water, one pint and a half. Rub the senna with the coriander and separate, by sifting, five ounces of the mixture. Boil the water with the figs and liquorice added, until it is reduced to one-half; then press out and strain the liquor. Evaporate the strained liquor in a jar by boiling until twelve fluid ounces remain; then add the sugar, and make a syrup. Now mix the pulps with the syrup, add the sifted powder and mix well. Use as a purgative. Dose, one to two teaspoonfuls; most useful in constipation.

Senna Confection, No. 2.—A more simple confection but equally efficacious, may be made in the following manner. Infuse an ounce of sennaleaves in a pint of boiling water, pouring the water on the leaves in a covered mug or jug, or even an old earthenware teapot. Let the infusion stand till it is cold, then strain off the liquor,

and place it in a saucepan or stew pan, adding to it one pound of prunes. Let the prunes stew gently by the side of the fire till the liquor is entirely absorbed. Use as a purgative or laxative, giving half a teaspoonful to little children, and a teaspoonful to children over ten years of age, and from two to four teaspoonfuls to adults.

Castor Oil and Senna Confection.—Take one drachm of powdered gum arabic, and two ounces of confection of senna, and mix, by gradually rubbing together in a mortar, with half an ounce of castor oil. Dose: from half a tablespoonful to two tablespoonfuls. Use as a purgative.

Strong Purgative Pills.—Take of powdered aloes, scammony, and gamboge, each fifteen grains, mix, and add sufficient Venice turpentine to make into a mass, then divide into twelve pills. Dose, one or two occasionally.

Milder Purgative Pills.—Take four grains of powdered scammony and the same quantity of compound extract of colocynth, and one grain of calomel; mix well, and add two drops of oil of cloves, or thin gum-water, to enable the ingredients to combine properly, and divide into two pills. Dose, one or two when necessary.

Common Purgative Pills.—Take of powdered jalap and compound extract of colocynth each four grains, of calomel, one grain, mix as usual, and divide into two pills. Dose, one or two occasionally.

Cream of Tartar Confection.—Take one ounce of cream of tartar, one drachm of jalap, and half a drachm of powdered ginger; mix into a thick paste with syrup. Dose, two teaspoonfuls. Use as a strong purgative.

Purgative for Children—Rhubarb and Magnesia.

Mix one drachm of powdered rhubarb with two drachms of carbonate of magnesia, and half a drachm of gin-

ger. Dose, from fifteen grains to one drachm. Use as a purgative for children.

Consumption

Is a disease which is due to the development within the tissues of the tubercle bacillus. It is probably the greatest scourge that ever visited mankind, and is responsible for more suffering and deaths than almost any other disease; in fact, its ravages produce about one-fifth of the death rate of the adult population, and in children it is equally fatal. It is considered a hereditary disease, so far as the facts and deductions at our command seem to indicate. At the same time it must be looked upon as a specific disease, and due, in its essence, to the presence of a particular micro-organism which has the power of attacking and invading tissues such as the lungs, glands, and bones, in which it develops its virulence. Consumption is usually the term applied to pulmonary disease where tubercle is the power at work.

Symptoms.—It is manifested by a cough accompanied by copious expectoration which comes chiefly in the morning. Unlike the usual expectoration of bronchitis or catarrh, which, as a rule, is frothy, the expectoration of tubercular disease is characterized by its purulent nature, which may sometimes be streaked with blood, or even accompanied by spitting of blood. Technically, the expectoration is termed nummular, in consequence of its resembling somewhat in shape and form a coin. Its consistence is denser than that of any other form of expectoration. Another symptom of consumptive or tubercular disease is wasting of the body, the emaciation proceeding in some instances to a great degree. It is frequently accompanied by profuse perspiration, especially at night. The ex-

tremities of the fingers become clubbed, the face pallid with a hectic flush on each cheek, and in many instances there is profuse diarrhoea, and if the mucous membrane of the larynx is also attacked there is hoarseness, in some cases proceeding to actual loss of voice.

Treatment.—Consumption, to be curable, must be detected in its very earliest stages, when a change to a dry, bracing, and cold climate, such as is found in Colorado and some parts of the Engadine, will have a most beneficial effect; a long sea voyage is also a popular remedy which has proved of great service; conjoined with these a good nourishing diet must be prescribed. Cod liver oil, syrup of hypophosphites, muriate of calcium, creosote, and other remedies of a like nature have proved most efficacious in enabling the constitution to overcome the disease and expel it from the system. As is well known, Koch has recommended the subcutaneous infection of a substance which he calls tuberculin, while others have advised the employment of a compound of cantharidin with some mineral salt; others, again, have recommended the subcutaneous injection of chloride of zinc; but all these local applications can in reality have little effect upon the disease, which is essentially a constitutional affection. The grand point in treating consumption is to strengthen the organism attacked so that each individual cell composing that organism will be rendered capable of exerting its powers to the full, and so resist the multiplication of the entities which constitute the real essence of the disease, and thus prevent them getting a footing and a hold upon the individual. Muriate of calcium would appear to have the most powerful effect in accomplishing this end, and it seems to me beyond doubt to be the great remedy which in future

we will depend upon in the treatment of this disease which has hitherto proved to be a most fatal affection. Of course no treatment of a disorder of this nature can of itself cure or arrest it. Medical treatment must therefore be accompanied by strict attention to the laws of health. A good and nourishing diet must be partaken of, while the body should be well and comfortably clothed, flannel in every instance being worn next the skin. The apartment which the patient sleeps in should be airy and well ventilated. It is a curious circumstance connected with this disease, that patients suffering from it never seem to realize its danger, but invariably are buoyed up by most optimistic views. It should always be borne in mind that consumption is to a considerable extent an infectious disorder, and therefore it is desirable that those who are in a healthy condition should avoid occupying the same bed, or even the same apartment, with a patient suffering from this affection.

Contagion.

Contagion means literally the contracting of disease by touch. The term is applied, however, to all infection contracted either by breathing the air exhaled from a patient, or by drinking out of the same vessels, or by using the same clothing as that which has been utilized by patients suffering from infectious disorders. This power of propagating disease is due to the fact that the organisms which are the disease-producing entities are transferred from one individual to another, and it is then called epidemic disease. Endemic, on the other hand, is applied to those diseases which come and are spread independently of infection — e. g. influenza, which appears to come in a wave and attacks whole communities without any evidence to indicate that it is spread by infection

or contagion. There are certain forms of contagion which, if antiseptic precautions are not thoroughly and efficiently employed, may linger about a piece of furniture or clothing, or a bedroom, for months after the disease has apparently disappeared, thus showing the great necessity of employing disinfectants, not only to the individual, but to all his surroundings, immediately when convalescence has been established. The most virulent forms of diseases, such as scarlet fever and small-pox, have been known to develop months after all fear of infection had been apparently removed. No precaution, when the disinfecting process is being carried out, should be overlooked, and the most minute details with regard to this sanitary measure should be rigidly enforced. The best antiseptics to employ in the circumstances are carbolic acid, chlorine, sulphur, eucalyptus, etc., and one or other of these ought to be freely employed, not only when the house is being disinfected, but during the progress of the disease. A good plan is to have a sheet over the doorway of the apartment where the infected patient is lying, and to keep this freely sprinkled with a saturated solution of carbolic acid in water. By this means the air that passes out of that apartment will be disinfected before it gains access to the other parts of the house. The ventilation of the room should also be made certain by keeping a fire constantly burning.

Contusions.

These are best healed by laying a piece of folded lint, well wet with extract of lead, on the part, and, if there is much pain, placing a hot bran poultice over the dressing, repeating both, if necessary, every two hours. When the injuries are very severe, lay a cloth over the part, and suspend a basin over it filled with cold lotion.

Put a piece of cotton into the basin, so that it shall act as a syphon and allow the lotion to drop on the cloth and thus keep it always wet. (See, also, Bruises.)

Contusions, Bruises, Etc.—Cold, Evaporating Lotions for.

Add two drams of Goulard's extract and the same quantity of sulphuric ether to a pint of cold water. Use as lotion for contusions, sprains, inflamed parts, etc.

Convalescence.

Convalescence is that period which intervenes between the cessation of disease and the restoration to health. It commences at the point where the disease process has completely ceased to act, and is as a rule characterized by a feeling at its commencement of great prostration, which very slowly or rapidly, as the case may be, gives place to the re-establishment of health and strength. In convalescence it is of the utmost importance to endeavor to restore the vital energies by the judicious yet frequent administration of suitable nourishment and stimulants, where the latter are thought to be advisable. A change of air in these circumstances is frequently of considerable service, but the grand point is to insist on the patient taking food, and that of the most nutritious and easily digested character, at frequent intervals, which should be continued even during the night, that is if the patient is not asleep. It must be observed, however, that sleep is one of the best restorers, or is the best restorer, that a convalescent can command, therefore this should never be disturbed on any pretext. Sometimes it will be found that, where there is restlessness and wakefulness during the night, if an egg flip or a cup of strong nutritious soup be taken, sleep will speedily en-

sue, and that of a most refreshing nature. In convalescence from acute disease which has necessarily prostrated the vital energies to a considerable extent, it will be found that taking food liberally and frequently will aid very much in shortening the period of restoration to health. The management of convalescence is sometimes even more important than the treatment of diseases, for these as a rule run a certain course, and if the vitality of the patient be well maintained, will do so without causing much anxiety, yet, in some diseases, such as scarlet fever, measles, small-pox, pneumonia, influenza, etc., so many complications may arise in the course of convalescence that the greatest care must be exercised, and the most extreme vigilance employed to counteract the tendency to inflammatory affections which so frequently prevail during this period. The excretions must be rigidly watched; for example, the bowels should be acted upon at least once a day, and the condition of the urine carefully observed. If constipation exists, it acts in a most pernicious manner, while an unhealthy condition of the kidneys may proceed to disease which may eventually prove fatal. During convalescence the bedroom should be well ventilated, the clothing be sufficient, and the diet and cooking be most carefully attended to.

Convulsions.

Convulsions are those distressing symptoms characterized by unconsciousness and involuntary movements of the muscles of the body at large. They are always of an alarming nature, and give rise to great anxiety to those interested in the patient. They are characterized by twitching of the muscles of the face, contortions of the body, lividity of countenance, foaming at the mouth,

and frequently biting of the tongue. They may arise from some reflex irritation, such as teething, constipation, or worms. On the other hand, they frequently are due to some organic mischief within the brain itself, such as epilepsy or congestion of the lining membrane of the brain, of vessels within the brain substance, or rupture of vessels within the cranium. An attack may come on without the least warning, but, as a rule, there are generally premonitory symptoms. If in children (and they are probably more liable to this nervous disorder than older people), the convulsion will generally be preceded by moaning in the sleep, grinding of the teeth, starting in a fright, irritability of temper, squinting or rolling of the eyeballs in sleep, a startled look upon the face, and a constipated condition of the bowels. In an adult they are sometimes preceded by restlessness at night, noises in the ears, giddiness, depression of spirits, irritability of temper, confusion of the mind, and want of power of concentrating the thoughts, loss of memory, and headache. The digestive organs are very frequently involved, and vomiting without any obvious cause is also a frequent concomitant. There may be hiccough, cramp of the limbs, and as a rule there is present a peculiar sensation which is called the "Aura," which will be immediately followed by the attack.¹ Convulsions are rarely fatal when due to a cause outside the nervous apparatus, that is to say, when they are not due to some organic disease within the brain or spinal cord.

Convulsions of Children should be treated by immediately emptying the bowels, either by medicine or by an enema; a mustard poultice should then be applied to the nape of the neck and to the calves of the legs. If the convulsion persists, the adminis-

tration of chloroform should be immediately resorted to, when the spasm will be found to pass away as the patient comes under the influence of the anæsthetic. Ten grains of bromide of potassium combined with an equal quantity of chloral dissolved in water will generally prove very efficacious in keeping the attacks in abeyance. In some instances it may be necessary to lance the gums. After the attack has been successfully combated, its recurrence should be guarded against by strict attention to diet and to the daily evacuation of the bowels. The warmth of the body should also be thoroughly maintained by judicious clothing. In every instance, however, where a convulsion occurs, no time should be lost in administering a hot bath and having recourse to medical advice, as the treatment of such cases requires the best professional skill that can be obtained.

Corns.

Corn is an excrescence generally situated upon one or other of the toe joints. It is a hypertrophied condition of the cuticle or epidermis of the part, and is as a rule due to friction or pressure arising from wearing tight shoes. This, however, is not always the cause, the tendency to corns being generally hereditary. They therefore do not disappear when the apparent cause is removed, but may persist in spite of this. Sometimes what are called soft corns appear between the toes, and these as a rule are due to an excessive secretion of the skin, causing irritation. They are generally productive of considerable uneasiness and pain. When corns are situated in this particular locality, they generally contain underneath the hardened surface of the skin an accumulation of fluid resembling in some respects the contents of an abscess. The treatment which gives the most speedy

relief consists in removing the indurated (hardened) surface, and afterwards applying a solution of salicylic acid in collodion along with the extract of *Cannabis Indica*, the latter soothing the pain which the former is apt to give rise to. The salicylic acid has a destructive effect upon the cuticle and in process of time is quite effective in eradicating the affection. Chromic acid has also a powerful destructive effect upon this thickened condition of the epidermis. The application of caustic at frequent intervals has also been advocated in these circumstances, but nothing seems to have the curative effect that salicylic acid combined with collodion exerts.

Corns—To Cure.

Prevention is better than cure. Wear woolen stockings, and see that there is no local and permanent pressure on any part of the foot. To cure: Put the feet for half an hour, two or three successive nights, in a solution of soda—two tablespoonfuls of soda, in a small foot tub of hot water. The alkali dissolves the indurated cuticle, and the corns fall out.

Another.—Tie a piece of raw cotton to the corn, and wet it several times a day with spirits of turpentine; this will, in three days, cure the corn without the least apparent pain.

Another.—Soak the feet in warm water, pare off as much as possible of the horny part of the corn, then lay upon it a moistened wafer, and again upon this a piece of buckskin, with a hole cut through it the size of the corn. Renew the moist wafer twice a day, and in a few days the corn will work out.

Another.—To cure corns, take a lemon, cut a piece of it off, then nick it so as to let in the toe with the corn. Tie this on at night so that it cannot move, and you will find the

next morning that, with a blunt knife, the corn will come away to a certain extent. Two or three applications will effect a thorough cure.

Another.—The strongest acetic acid applied night and morning with a camel's hair brush. In one week the corn will disappear.

Another.—Dissolve glue as you would to mend furniture; spread it on the corns; place muslin rags over them to prevent the glue from sticking to the stocking; repeat the application a few times, and the cure will be effectual.

Corns—Caustic for.

Tincture of iodine and chloride of antimony, of each one drachm; iodide of iron, three grains; mix. It is applied with a camel's hair brush after paring the corn. Two to four applications are said to effect a cure.

Corn Plaster.

From white diachylon, three parts; yellow resin, two parts; verdigris, one part; melted together and laid on leather.

Another.—From galbanum plaster, one ounce; verdigris, one drachm; as the last.

Another.—From resin plaster, two ounces; black pitch, one ounce; verdigris and sal ammoniac, of each, half drachm.

Another.—To the last add powdered opium, one drachm. Recommended to allay pain, etc.

Another.—A piece of spread adhesive plaster is placed upon a table, and a piece of cardboard having a round hole cut in it the size of the central portion of the corn is laid upon it; the exposed part is then softened by holding a piece of heated iron for a second or two near it; the card paper is then instantly removed and nitrate of silver in fine powder is sprinkled over the part which has been warmed.

As soon as the whole is cold the loose powder is shaken off and the plaster is ready for use. Very cleanly and convenient. Two or three applications seldom fail to effect a cure.

Corn Plaster.—Mechanical.

From common adhesive plaster spread on buckskin, amadou or vulcanized India rubber cut into pieces and a circular hole corresponding to the size of the corn punched in it.

Corrective—Tincture of Ginger.

Take of ginger, in coarse powder, 2 ounces; proof spirits, 2 pints. Digest in a gentle heat for 7 days, and strain. This tincture is cordial and stimulant, and is generally employed as a corrective to purgative draughts.

Cough.

Cough is a violent expectoration which expels air and mucus from the air passages. It is invariably the symptom of disease, and not so much a disease of itself. It is always induced by the cold air impinging upon an irritated surface of the respiratory tract. When arising from disease confined to the larynx it is generally associated with a tickling sensation at the top of the windpipe, and is liable to assume in such circumstances a spasmodic character with little expectoration. When, however, the bronchial tubes or lung tissue are affected, the cough terminates in the expectoration of a mucous, or mucopurulent, or muco-sanguineous discharge. Cough in many instances, on the other hand, may be reflex in its character and arise from derangement of the stomach, the irritation of worms, or some uterine disorder. In every instance where cough of a troublesome nature exists it is wise to call in medical aid so as to ascertain its proper source and the treatment to be applied. In the majority of instances cough usually arises from the effects of ex-

posure to cold, and great relief, if such be the case, will be obtained by the judicious administration of an expectorant mixture, such as the following: Chlorodyne, chloric ether, and ipecacuanha wine, of each three drachms, syrup of squills to make three ounces—a teaspoonful to be taken at intervals of two or three hours to soothe the irritable membrane and at the same time promote expectoration.

Cough Compound.

For the cure of coughs, colds, asthma, whooping cough, and all diseases of the lungs: 1 spoonful of common tar, 3 spoonfuls of honey, the yolks of 3 hen's eggs, and half a pint of wine; beat the tar, the eggs, and the honey well together with a knife, and bottle for use. A teaspoonful every morning, noon, and night, before eating.

Another.—Boil some linseed, strain and sweeten with honey or hoarhound candy and drink hot.

Coughs and Colds—Remedies for.

Balsam of Honey.—Balsam of tolu, 1 oz.; gum storax, 1 dr.; purified opium, 16 gr.; best honey, 4 oz.; rectified spirits of wine, 1 pint. Digest them together for a week, and strain the liquor. This prescription is of great use in colds and habitual coughs, unaccompanied by feverish symptoms. The dose is from 1 to 3 teaspoonfuls occasionally.

Balsam, Indian.—Clear, pale resin, 3 lbs., and melt it, adding spirits of turpentine, 1 quart; balsam of tolu, 1 oz.; balsam of fir, 4 oz.; oil of hemlock, origanum, with Venice turpentine, of each, 1 oz.; strained honey, 4 oz. Mix well and bottle. Dose—6 to 12 drops, for an adult; for a child of 6 years, 3 to 5 drops on a little sugar. The dose can be varied according to the ability of the stomach to bear it, and the necessity of the case. This is a valuable preparation for coughs or internal pains.

Lozenges.—Extract of bloodroot, licorice, and black cohosh, of each $\frac{1}{4}$ of an ounce; tinctures of ipecac and lobelia, with laudanum, of each $\frac{1}{4}$ of an ounce; Cayenne, powdered, 10 grains; pulverized gum arabic and starch, of each $\frac{3}{4}$ of an ounce; mix all together, and add pulverized sugar 3 ounces. If this should be too dry to roll into lozenges, add a thick solution of gum arabic to give it that consistence; and if it should be yet too moist, at any time, add more sugar. Divide into 320 lozenges. Dose: 1 lozenge, 3 to 6 times daily, as needed.

Keating's.—Lactucarium 2 drachms, ipecacuanha 1 drachm, squills $\frac{3}{4}$ drachm, extract of licorice 2 drachms, sugar 6 ounces. Made into a mass with mucilage of tragacanth, and then to be divided into twenty-grain lozenges, for use.

Mixture.—Take 1 teacupful of molasses, and add 2 tablespoonfuls of vinegar; simmer this over the fire; then, when taken off, add 3 teaspoonfuls of paregoric, and as much refined nitre as can be put upon the point of a small breakfast knife. Of this mixture take two or 3 teaspoonfuls on going to bed, and 1 or 2 during the day when you have a disposition to cough.

Syrup.—Put 1 quart of hoarhound to 1 quart of water, and boil it down to a pint; add 2 or 3 sticks of licorice and a tablespoonful of essence of lemon. Take a tablespoonful of the syrup 3 times a day, or as often as the cough may be troublesome.

Another.—Drop 3 eggs in 1 pint of vinegar, and let them stand for three days, then add $\frac{1}{2}$ pound of honey, and mix well together. Bottle tight, and take a wine-glassful night and morning.

Another.—Take one teacup of flaxseed, soak all night. In the morning put in a kettle, 2 quarts of water, a handful, split up, of licorice root, $\frac{1}{4}$

of a pound of good raisins, broken in half. Let them boil until the strength is thoroughly extracted, then add the flaxseed, which has been previously soaked. Let all boil about half an hour more, watching, and stirring, that the mixture may not burn. Then strain and add lemon-juice and sugar to taste. Take any quantity, cold through the day, and half a tea-spoonful, warm, at night.

Another.—A coffee-cup of flaxseed, 2 quarts of water, boil several hours until reduced to a jelly; strain through a thin cloth, squeeze in the pulp and juice of a large lemon; roll $\frac{1}{4}$ of a pound of the best raisins, mix them in the jelly, simmer, without boiling, one hour; strain again, add half a teacup of the best loaf-sugar. Take a tablespoonful every hour.

Coughs—Soreness or Hoarseness form.

Spikenard root, bruised and steeped in a teapot, by using half water and half spirits; then inhaling the steam, when not too hot, by breathing through the spout, will relieve the soreness and hoarseness of the lungs, or throat, arising from much coughing.

Cough—Lemon for.

Roast the lemon very carefully without burning it; when it is thoroughly hot, cut and squeeze into a cup upon 3 ounces of sugar, finely powdered. Take a spoonful whenever your cough troubles you. It is good and agreeable to the taste. Rarely has it been known to fail of giving relief.

Cough—Mixture (for Children).

Mix three drachms of ipecacuanha wine with half-an-ounce of oxymel of squills, the same quantity of balsam of tolu, one ounce of mucilage, and two ounces of water. Dose: one tea-spoonful for children under one year, two teaspoonfuls from one to five

years, and a tablespoonful from five years, every time the cough is troublesome.

Cough—Whooping.

Whooping cough is a curious disorder of a certain nerve, viz.: the pneumogastric. This nerve supplies the stomach, lungs, and larynx. It is a question whether the disease is primarily a stomach disorder, a lung disorder, or an affection of the larynx, or whether it is due to some congested condition of the nerve center itself. Be this as it may, the cough, which is paroxysmal in its character, affects all the three organs to which the nerve is distributed: we have the cough proceeding from the lungs, the whoop which is a spasmodic affection of the larynx, and the vomiting which of course arises from the irritation of the stomach. Whooping cough commences apparently like an ordinary catarrh of the head, which seems to spread to the larynx and downwards towards the lungs. The cough at first is not paroxysmal, but speedily the paroxysms supervene after what is usually called a "fit" of coughing. The difficulties experienced by those suffering from whooping cough are—an inability to inspire while the paroxysm prevails, as the cough is so very incessant, and when the cough is exhausted the prolonged draught of air passing through the spasmodically closed larynx gives rise to the peculiar whoop which is characteristic of the disease. As a rule, however, the paroxysm does not actually cease until free vomiting has taken place, when it will be observed that the contents of the stomach are largely mixed with a glairy mucous expectoration. While the expulsive cough is going on it would seem as if the child were on the point of suffocating—the face becomes swollen and livid, and the veins of the neck and face

turgid, and the eyes sometimes, in a severe paroxysm, have the appearance as if they would start out of their sockets; the child convulsively holds on to whatever object it can lay its hands upon, so as to obtain support during the paroxysm. Not unfrequently the congestion of the blood-vessels of the head is so great that rupture may take place from small twigs, either in the nose or eye, or possibly, as I have observed, within the brain itself. Bleeding at the nose then is not unfrequently a concomitant of whooping cough, while effusion of blood in the white of the eye also occasionally occurs.

Treatment.—The treatment of whooping cough consists in, first of all, careful attention to the bowels, especially keeping the lower bowel empty by enemata if necessary, rubbing the child's chest and abdomen night and morning with a liniment composed of equal parts of soap and opium combined with compound camphor and belladonna liniments. Many internal remedies have been advocated for this disorder. Among those which I have found most useful are the iodide of silver given in $\frac{1}{3}$ of a grain doses three times a day; the bromide of sodium in from 5 to 15 grain doses, according to the age of the child, three or four times a day. The greatest danger of whooping cough consists in the complications which frequently arise in its course, viz., bronchitis and pneumonia. Either of these diseases add very much to the gravity of this affection when they are present. The greatest care should therefore be taken to avoid exposure to cold.

Whooping Cough—Other Remedies for.

Into half a pint of white vinegar break a freshly laid egg: when the egg is dissolved, add half a pound of

rock candy. Dose from three to four tablespoonfuls per day.

Another.—Onions and garlies, sliced, of each 1 gill; sweet oil, 1 gill; stew them in the oil, in a covered dish, to obtain the juices; then strain and add honey, 1 gill; paregoric and spirits of camphor, of each $\frac{1}{2}$ oz.; bottle and cork tight for use. Dose: For a child of 2 or 3 years, 1 tea-spoon, 3 or 4 times daily, or whenever the cough is troublesome, increasing or lessening, according to age.

Another.—Mix a quarter of a pound of ground elecampane root in half a pint of strained honey and half a pint of water. Put them in a glazed earthen pot, and place it in an oven, with half the heat required to bake bread. Let it bake until about the consistence of strained honey, and take it out. Administer in doses of a teaspoonful before each meal, to a child; if an adult, double the dose.

Sun Stroke—or Coup de Soleil.

Sunstroke, or Sun Apoplexy, is the direct effect of the sun playing for a considerable time upon the naked or insufficiently protected head, which produces congestion of the brain or its membranes. The symptoms are, throbbing of the head, accompanied by sickness, and frequently followed by insensibility, and even death. The treatment should be in every instance very prompt, and consists in the application of cold to the scalp, either in the form of cold water cloths or ice bags, while the bowels should be thoroughly emptied by a purgative, and mustard poultices applied to the abdomen and extremities. The patient should at the same time be kept perfectly quiet and free from any form of excitement, and the food should be of the simplest kind.

Cow Pox.

This disease was proposed as a substitute and preventive of smallpox,

by Dr. Jenner in 1798. The success which has followed its artificial production has nearly led to the extinction of smallpox in England. The process of vaccination is similar to that of inoculation for the smallpox. About the third day the puncture usually becomes red and elevated, and continues to enlarge and become vesicular, until at about the 8th or 9th day, it is at its height, and the vesicle is surrounded with a florid areola. About the eleventh or twelfth day these symptoms decline; the center of the pustule becomes brown, and a dark scale gradually forms and separates, leaving the arm as heretofore. This disease seldom requires medical treatment; but should febrile symptoms come on, an aperient may be given.

Cramp.

Cramp is a spasmodic affection of one or other of the muscular tissues. It may affect the voluntary muscles, such as those of the leg or thigh, also the involuntary muscles, such as those of the intestines or stomach. When cramp occurs, the part affected contracts to such an extent as to produce a hard lump at the point of seizure. When it occurs in the bowels it is generally due to some indigestible food in the stomach, or which has escaped from the stomach into the intestines. When it occurs in the limbs it is generally due to some reflex irritation conveyed from the stomach or bowels. It is a symptom of British and Asiatic cholera. It is also frequently due to disease of the heart or the large blood-vessels of the chest. Exposure to prolonged cold frequently produces cramps, and this is particularly noticeable in the cramp which seizes those who have been too long immersed in cold water, and it is in many instances the cause of death to bathers. The best remedy when

cramp occurs is to use friction very energetically to the part affected. Bromide of potassium given internally is also a useful remedy, not only relieving the spasm, but preventing its occurrence. When the bowels are affected by this painful disorder, opiates, in one form or another, are exceedingly useful. In every instance, where a person is liable to cramp, particular attention should be invariably paid to the free evacuation of the bowels. When cramp comes on during cold bathing, the limb should be thrown out as suddenly and violently as possible, care being taken not to become flurried or frightened; as presence of mind is very essential to personal safety on such an occasion. A common cause of cramp is indigestion, and the use of acescent liquors; these should be avoided.

Cramp Lotion—Acetate of Lead with Opium.

Take twenty grains of acetate of lead, and a drachm of powdered opium, mix, and add an ounce of vinegar, and four ounces of warm water, set aside for an hour, then filter. Use externally as an astringent.

Cramp—In the Legs.

Stretch out the heel of the leg as far as possible, at the same time drawing up the toes as far as possible. This will often stop a fit of cramp after it has commenced. (See, also, Swimming.)

Cramps—Antispasmodic Drink for.

Mix four grains of subnitrate of bismuth, forty-eight grains of carbonate of magnesia, and the same quantity of white sugar, and then divide into four equal parts. Dose: one-fourth part. Use in obstinate pain in the stomach with cramps, unattended by inflammation.

Creosote.

Creosote is a substance very much resembling carbolic acid in its properties and odor. It is obtained from the destructive distillation of wood, and possesses powerful antiseptic properties. It is employed both externally and internally as a medicine. Externally, it is frequently added to ointments, both on account of its antiseptic properties and its sedative effect upon the skin. Internally, it is applied to decayed teeth for the relief of toothache. It frequently enters also into the composition of inhalations, a few drops being added to a jug of boiling water and inhaled for the relief of bronchial affections and also in common catarrh of the head. In the form of pill (one grain mixed with a little bread crumb), it has a sedative effect on the stomach, and thus is useful in vomiting. Creosote is not unfrequently employed in the curing of certain kinds of fish, they being dipped into a weak solution and then hung up to dry.

Croton Oil.

Croton oil is obtained from the seeds of the small plant called croton-tigium, which is a native of India and Ceylon. The oil should be of a very pale amber color and nearly as thick as castor oil. It is a very acrid oil, and as a purgative it is very rapid in its effects, a single drop being sufficient to produce copious evacuation of the bowels. Externally it is applied in the form of liniment, the oil being diluted for this purpose with cajuput, or some other bland oil. It has proved to be a most useful liniment in bronchitis. Its application is followed by a copious papillary eruption. Great care should be taken by those who apply the liniment that they do not bring it in contact with the face, as it will thereby produce intense irritation and swelling,

especially if it is rubbed in near the eyes.

Croup.

There are two forms of croup, that of the most frequent occurrence being of a spasmodic nature, and due, as a rule, to reflex irritation produced by indigestion or constipation combined with slight cold. It most frequently occurs in early childhood, and is always a source of great anxiety to parents. The treatment should be commenced by giving a good dose of castor oil, and if this causes sickness benefit will be derived, but in any case by clearing the stomach and bowels the cause of the spasm will be speedily removed. The chest, back and front should at the same time be well rubbed with the following liniments: Equal parts of the compound camphor liniment, belladonna liniment, and soap and opium liniment—a little to be well rubbed in over the back and chest at intervals of two or three hours. Sometimes it may be necessary to supplement a dose of castor oil with 10 drops of ipecacuanha wine every few hours until vomiting is produced. This medicine has the additional effect of promoting a flow of mucus in the windpipe and bronchial tubes. This form of croup goes under the name of spurious croup in contra-distinction to membranous or true croup. The latter, however, appears to be more allied to diphtheria, and therefore is always a most dangerous disease.

Croup—Other Remedies for.

Let a healthy person fill his lungs with pure air, then slowly breathe upon the patient's throat and chest, commencing at the point of the chin, and moving slowly down to the bottom of the windpipe. Repeat for a few minutes and it will give relief in cases where all other means fail.

Another.—Cut onions into thin slices; between them put brown sugar and let it dissolve; a teaspoonful of the syrup will give instant relief.

Cuts and Wounds.

Clean-cut wounds, whether deep or superficial, and likely to heal by the first intention, should never be washed or cleaned, but at once evenly and smoothly closed by bringing both edges together, and securing them in that position by adhesive plaster. Cut thin strips of sticking-plaster, and bring the parts together; or if large and deep, cut two broad pieces, so as to look like the teeth of a comb, and place one on each side of the wound, which must previously be cleaned. These pieces must be arranged so that they shall interlace one another; then, by laying hold of the pieces on the right side with one hand, and those on the other side with the other hand, and pulling them from one another, the edges of the wound are brought together without any difficulty. If water is used to cleanse a wound use it warm, with one drop of carbohc acid added for every 40 drops of water.

Ordinary cuts are dressed by thin strips, applied by pressing down the plaster on one side of the wound, and keeping it there and pulling in the opposite direction; then suddenly depressing the hand when the edges of the wound are brought together.

Serious Cuts—Further Remarks on.

First stop the bleeding, by bringing the edges of the wound together, if the flow is but trifling. If, on the contrary, it is large, of a bright vermilion color, and flows in spurts or with a jerk, an artery is severed, and at once should pressure be made on the parts by the finger (between the cut and the heart), until a compress is

arranged by a tight ligature above the wounded part. Then the finger may be taken off, and if the blood still flows, tighten the handkerchief, or other article, that forms the ligature, until it ceases. If at this point the attendance of a physician or surgeon cannot be secured, take strong silk thread, or wax together three or four threads, and cut them into lengths of about a foot long. Wash the parts with warm water, and then with a sharp hook or small pair of pincers in your hand, fix your eye steadfastly upon the wound, and directing the ligature to be slightly released, you will see the mouth of the artery from which the blood springs. At once seize it, draw it out a little, while an assistant passes a ligature around it, and ties it up tight with a double knot. In this way take up in succession every bleeding vessel you can see or get hold of. If the wound is too high up in a limb to apply the ligature, do not lose your presence of mind. If it is the thigh, press firmly on the groin; if in the arm, with the hand-end or ring of a common door key make pressure above the collar-bone, and about its middle, against its first rib, which lies under it. The pressure should be continued until assistance is procured and the vessel tied up. If the wound is on the face, or other place where pressure cannot effectually be made, place a piece of ice directly over the wound, allowing it to remain there until the blood coagulates, when it may be removed, and a compress and bandage be applied.

After the bleeding is arrested the surrounding blood should be cleared away, as well as any extraneous matter; then bring the sides of the wound into contact throughout the whole depth, in order that they may grow together as quickly as possible,

retaining them in their position by strips of adhesive plaster. If the wound be deep and extensive, the wound itself and the adjacent parts must be supported by proper bandages. The position of the patient should be such as will relax the skin and muscles of the wounded part. Rest, low and unstimulating diet, will complete the requirements necessary to a speedy recovery.

Cut Throat.

Two great dangers which threaten life immediately in this horrible condition are, bleeding from the large vessels of the neck, and the liability of the blood to enter the windpipe, thus producing suffocation. If a non-medical person has sufficient presence of mind to act energetically on the instant he may render considerable assistance by restraining the bleeding. If an artery is wounded the danger of course is much more imminent, and pressure would not be of much service. The proper course to adopt would be to endeavor to seize the bleeding vessels by forceps and tie them with a silk or cotton ligature until medical assistance arrives. If, on the other hand, a vein is wounded, gentle pressure with a handkerchief made into a pad and dipped in cold water, would be effectual in arresting the bleeding. If the windpipe is wounded the patient should be laid on his side or front, so as to endeavor to keep the blood from gaining access to the wounded tube. Of course it goes without saying that medical assistance should be immediately sent for.

Court Plaster.

Soak bruised isinglass in a little warm water for 24 hours, then evaporate nearly all the water by gentle heat; dissolve the residue in a little proof spirits of wine, and strain the

whole through a piece of open linen. The strained mass should be a stiff jelly when cool. Now extend a piece of silk on a wooden frame, and fix it tight with tacks or pack thread. Melt the jelly, and apply to the silk thinly and evenly with a badger hair brush.

A second coating must be applied when the first has dried. When both are dry, cover the whole surface with coatings of balsam of Peru, applied in the same way. Plaster thus made is very pliable, and never breaks.

Dandruff

Is an affection of the cuticle wherein the complete development of the outer layer is interfered with, and is therefore cast off in scales. It is positively a disease of the epidermis, and is closely allied to that form of skin disease which is termed Pityriasis. Hard brushes and small tooth combs should not be employed in this affection, but it is desirable that the scalp be washed two or three times a week with a solution of borax, and afterwards a pomade containing the red oxide of mercury applied. This application will have a curative effect upon the diseased condition of the cuticle and eventually cure the disease. Half an ounce of the red oxide of mercury may be added to two and a half ounces of ordinary pomade, and this will prove of considerable service in this affection. It frequently occurs in infants, but as a rule it will speedily disappear if soap is not used in cleansing the scalp, but instead, a solution of borax to which a little spirits of camphor has been added, and the oxide of mercury pomade may afterwards be applied with considerable advantage.

Dandruff—Another Remedy for.

Take carbolic acid $\frac{1}{2}$ drachm; oil of bergamot 1 drachm; glycerine 2 oz. Mix; rub thoroughly into the roots of the hair, and apply bay rum freely

afterwards; one application will cleanse the hair and scalp as clean as can be desired. Its use once a week will keep the hair soft and glossy, and will prevent dandruff from forming, besides keeping the scalp healthy and cool.

Deafness.

May be either partial or complete. If it is congenital the individual is also a mute, from the fact that he has never been able to hear sound, and therefore is unable to learn how to employ his vocal cords. The causes of deafness may be temporary or permanent. It may also be due to an affection of the brain, or only to the mechanism of the ear itself. Temporary deafness is frequently the result of catarrh of the external ear, of the internal ear, or of the Eustachian tube. Some drugs also have a curious effect upon the auditory apparatus, such as quinine when given in too large doses. If deafness is due to obstruction in the external ear, this may readily be removed by the judicious employment of the syringe, with warm water. If, however, congestion of the throat or Eustachian tube exists, by which the calibre of the tube is reduced, or even temporarily obliterated, then of course it becomes necessary to treat the local affection and remove the thickened condition of the mucous membrane which obtains. In any case it would be injudicious for the patient himself to attempt to cure his own deafness; his proper plan would therefore be to consult a competent medical authority on the subject. (See Ears—Care of).

Deafness (Temporary)—To Cure.

Temporary deafness, arising from cold, sitting in a draught, and other causes, may be relieved and cured by letting fall into the ear ten drops of a mixture of sweet oil and one of glycerine every night, until the duct which leads from the ear to the nose is

cleared; this will be known by the sensation of the fluid passing from the ear into the nostril.

Death—Sure Sign of.

Stick a needle an inch or so into the supposed corpse. In the living tissues the needle will soon become tarnished and oxidized, while in the actually dead it will retain its polish. (See, also, "Burying alive.")

Debility.

Debility, or weakness, is that failing of the vital powers of an individual which prevents him from performing his usual duties or enjoying pleasure as might naturally be expected if he were in health. Debility is invariably a concomitant of illness, and in many instances persists for a longer or shorter period after the illness has entirely disappeared; it therefore becomes necessary in an illness to endeavor to sustain the vital powers, not only with a view to counteract this debility, but at the same time to enable the patient to throw off the disease. The feeling of debility often arises from indigestion and constipation. If due to dyspepsia alone it is always more pronounced after a meal, but if due to constipation it gives rise to what is often erroneously designated as a bilious condition, and in these circumstances a free purge will often relieve the distressing symptoms. The great point in counteracting this state of the health is to endeavor to live regularly, both in the matter of diet and taking of sufficient exercise. The cold morning bath will also be found of great service in bracing up the system, a healthy condition of the skin being thus ensured and a tonic influence imparted to the body generally in consequence. Debility in childhood is very frequently congenital, but it is astonishing how this congenital deficiency may be remedied

by judicious measures being adopted, both in the way of nourishment and by remedies which ensure the proper assimilation of food. Muriate of calcium given after meals has proved itself a most potent remedy in promoting assimilation, and thus removing a great cause of debility in early childhood. The syrup of hypophosphites are also most useful medicines in this condition. When debility depends upon disease, then of course the cause must be attacked and removed before it is possible to get quit of this symptom; for, of course, in these circumstances, it can only be classed as a symptom and not as a disorder 'per se.' Debility naturally is a consequence of old age and general decay of the vital powers, yet even in such circumstances, by assisting digestion and attending carefully to the bowels, together with endeavoring to sustain the external heat by judicious clothing; a great deal may be accomplished in alleviating the symptom and in prolonging life.

Debility—Tonic for.

Mix twenty-four grains of extract of gentian and the same of purified green vitriol (sulphate of iron) together, and divide into twelve pills. Dose: one or two when necessary.

Delirium

Is a temporary aberration or disturbance of the mental functions, occurring during illness either of a febrile or exhausting nature, or due to prolonged indulgence in alcoholic drinks. It is generally a symptom of considerable importance, but not always so, slight causes frequently in children, and even in adults, producing delirium. When delirium arises from an exhausting disease it is always of serious import, and may gradually merge into a low muttering form and terminate in coma. Again delirium may be due to some

disorder of the brain, either of an inflammatory nature or resulting from injury. Of course, in the treatment of delirium the first thing to ascertain is its cause; e. g. if a person of full habit becomes delirious, and along with the delirium there is a high temperature, a quick pulse, blood-shot eyes, and a flushed face, the proper course to adopt would be to abstract blood either from the arm, or by leeching the temples, or cupping the nape of the neck. A free purgative should also be administered, while to the calves of the legs and abdomen mustard poultices should be applied, and the head shaved and kept cool by the application of ice. If the delirium is accompanied by violent contortions or movements of the limbs, these should be restrained as much as possible. Sleep should also be promoted by the administration of medicines which are known to have a soothing effect upon the nervous system without producing any degree of narcosis. The vital energy should also be maintained by the judicious administration of nourishment either by the mouth or rectum. In every case of delirium patients should be strictly watched, so that they may not do themselves any injury, as, frequently, if constant surveillance has not been observed, the patient has been known to rush out of the house by any mode of egress he could find, and not unfrequently this has been through the window; it therefore becomes essential that unceasing care be exercised till intelligence returns. Delirium is so frequently combined with violent muscular exertion that the disease is aggravated, and the chances of recovery very much interfered with in consequence of the exhaustion which naturally arises from such an amount of fatigue thereby induced. It would therefore be madness to abstract

blood, yet is it essential that the bowels be kept moderately open, the extremities kept warm, the head cool, and in every instance the patient should be placed in an airy and well ventilated room. Among the best medicines to induce sleep when delirium is present are—bromide of potassium in 30-grain doses administered every two or three hours, the hydrate of chloral in 15 to 20-grain doses repeated at intervals of two hours till sleep is induced, sulphonal in from 20 to 30-grain doses at intervals of four hours, or chloramid in in 20-grain doses repeated at intervals of two or three hours. There is hardly any disease of an acute nature which may not develop delirium in its course, and in all these instances it is usually dependent upon the vitiated condition of the blood due to the poison upon the presence of which the disease is dependent. Delirium must always be differentiated from insanity, its treatment being so entirely opposite.

Delirium Tremens.

Delirium Tremens is essentially an exhausted and poisoned condition of the nervous system due to the indulgence for a prolonged period in alcoholic drink. The disorder of the mind, which is the chief symptom of this disease, is of a peculiar kind. It is always accompanied by sleeplessness, restlessness, and peculiar hallucinations, which latter seem to excite terror in its most acute form. The entire bodily frame is in a state of tremor, even the closed eyelids and the tongue are tremulous, the hand is unable to perform any action with exactitude in consequence of the incessant shaking of the limb. Great prostration speedily follows the attack, yet the patient is unable to sleep, the nervous excitement becoming so intense that the patient

cannot be kept in bed, and eventually the strength becomes so exhausted that stupor supervenes, followed by death. Delirium tremens is frequently the sequel of an injury of one kind or another which overtakes a man who has been a habitual drunkard. The great point in the treatment of this disorder is to endeavor to restore the animal strength by means of the frequent administration of nourishing diet of an easily digestible nature, such as egg flips, beef peptinoids, and strong soups, while at the same time sleep may be induced by the administration of sulphonal, chloralamid, or any of the other soporifics which are mentioned in the article upon Delirium. It is needless to say that alcoholic stimulants should be entirely suspended and that the patient be constantly watched so as to prevent him doing himself an injury or escaping from the house.

Diabetes.

Diabetes is a wasting disease in which there is an unusually large secretion of urine in which is suspended a considerable amount of saccharine matter. This disease should only be treated under medical supervision. Many remedies have been proposed for its relief, but the sheet anchor of the patient consists in strict attention to diet and the avoidance of everything containing sugar or farinaceous matter. Skim-milk has been advocated by some as an article of diet in the treatment of this disease, but the great point consists in attention to the strict avoidance of all articles containing starchy or sugary matter. Among the medicines which have been recommended in this disease are—codeia, morphia, and salicylate of soda. In this affection, although the quantity of the urine is enormously increased, its specific gravity is always unduly high

in consequence of the sugar contained in it. It must be remembered, however, that a copious flow of urine does not always indicate diabetes, as frequently in certain nervous disorders the secreting power of the kidneys is very much increased. This is specially the case in hysterical affections.

Alum Whey.—A pint of cow's milk boiled with two drachms of alum, until a curd is formed. Then strain off the liquor, and add spirit of nutmeg, two ounces; syrup of cloves, an ounce. It is useful in diabetes, and in uterine fluxes, etc.

Diagnosis.

Diagnosis is the word which is applied to the art of discovering the nature of any disease and distinguishing it from others. It is a term which is largely employed in medical literature. To diagnose a case is of course the first step taken by every medical man when called into the sick room. If he is able to come to a correct conclusion as to the nature of the disease, the greatest difficulty has been overcome and the treatment is thereby rendered comparatively easy. If on the other hand, his diagnosis is incorrect, then the greatest mischief to the patient may follow. Hence the necessity in many cases of calling in other help to clear up a point which may be hazy. A great many instruments have been called into requisition for the purpose of assisting in diagnosis, the most important of which perhaps are the stethoscope, the thermometer, and the microscope, in medicine; in surgery, the probe, sound, and exploring needle; in diseases of the throat and air passages, the laryngoscope, and the rhinoscope; for the ear, the auriscope; for the female genital organs, the speculum and uterine sound; for disease of the kidneys, in addition to

the microscope and urinometer, chemical tests are employed in examining the constituents of the urine.

Diarrhœa.

Diarrhœa consists, as its nature implies, of a copious discharge from the bowels of liquid or semi-liquid matter, this generally being of a most offensive odor. It is frequently accompanied by severe griping pain, which invariably indicates that the diarrhœa is due to the presence of some irritating matter within the intestinal canal. The proper method of treatment to be adopted when these painful symptoms accompany the disorder is, to commence by clearing out the alimentary canal by means of castor oil and laudanum, or a mixture of rhubarb, soda, and ginger—the first however, as a rule, is to be preferred. A form of diarrhœa, or pseudo-diarrhœa, frequently occurs in the lower portion of the colon, and this is due to the presence of hardened fœces within the canal which set up the irritation, exciting the bowel to undue action in its efforts to get rid of the matter. This diarrhœa is accompanied by very great depression of spirits and irritability of temper, and may be recognized by the fact that when the patient goes to the stool he invariably has the feeling as if he could not get himself properly relieved, and feels inclined to sit and strain long after the bowel has apparently been emptied. It is also characterized by the fact that when the desire to go to stool comes on, the call is imperative and will admit of no delay. It has also the additional characteristic that diarrhœa frequently supervenes immediately on rising to the erect position or after partaking of a meal. It may continue for a day or two, and then there is a period of constipation, when the bowels do not act at all; this, however again gives place to

looseness of the bowels, and it is difficult to convince one ignorant of the cause of this form of diarrhœa that it is in reality due to constipation. The treatment consists in the employment of enemas (injections), so as to wash out the bowels and clear it of its irritating contents, and this should be repeated at regular intervals of at least forty-eight hours. Diarrhœa again is an urgent symptom in certain diseases, such as typhoid fever and cholera. It may also arise from a catarrhal state of the mucous membrane of the intestinal canal; in such diseases, however, it is essential that medical aid be called in to indicate the proper line of treatment. The most popular remedies for diarrhœa after the bowel has been cleared of any irritating matter are opium, chalk mixture, bismuth, and gum arabic, combined with a light diet.

Diarrhœa, other Remedies.—Take one teaspoonful of salt, the same of good vinegar, and a tablespoonful of water; mix and drink. It acts like a charm on the system, and even one dose will generally cure obstinate cases of diarrhœa or the first stages of cholera. If the first does not bring complete relief, repeat the dose, as it is quite harmless.

Another.—The best rhubarb root, pulverized, one ounce; peppermint leaf, one ounce; capsicum, one-eighth ounce; cover with boiling water and steep thoroughly, strain, and add bicarbonate of potash and essence of cinnamon, of each one-half ounce; with brandy (or good whiskey) equal in amount to the whole, and loaf sugar, four ounces. Dose, for an adult one or two tablespoons; for a child one to two teaspoons, from three to six times a day until relief is obtained.

Another.—To half a bushel of blackberries, well mashed, add a quarter of

a pound of allspice; two ounces of cinnamon; two ounces of cloves; pulverize well, mix and boil slowly until properly done; then strain or squeeze the juice through homespun or flannel, and add to each pint of the juice one pound of loaf sugar, boil again for some time, take it off, and, while cooling, add half a gallon of the best cognac brandy.

Rhubarb, Compound tincture of.—Take of rhubarb sliced, two ounces; liquorice root, bruised, one-half ounce; ginger powdered, saffron, each two drachms; distilled water, one pint; proof spirits of wine, twelve ounces by measure. Digest for fourteen days, and strain. Dose, one-half ounce as an aperient, or one ounce in violent diarrhœa.

Bitters, Blackberry.—The berry, when ripe, is known to be pleasant and wholesome, and two handfuls of the root, in three pints of milk or water, boiled down to a quart, in the dose of a teacupful every two or three hours, has often cured diarrhœa and dysentery when other things have failed.

Astringent Pills.—Mix sixteen grains of acetate of lead (sugar of lead) with four grains of opium, and make into a mass with extract of dandelion, so as to make eight pills. Dose, from one to two. Use as an astringent in obstinate diarrhœa, dysentery, and spitting of blood.

Diet.

Diet is a subject which is of the greatest importance for consideration in this age of luxuries. Nine cases out of ten of indigestion are due to over-indulgence in eating and drinking. Again, attention to diet is most important when there is a tendency to plethora and obesity, and it is equally important when there is a tendency to constipation, and certainly no case of dyspepsia can be treated without the

strictest attention being paid to the food, both as to its cooking and its nature. If there is undue distension after meals, such articles as broth, soups, stewed and boiled meats, pastry, badly cooked potatoes, and uncooked vegetables should be carefully avoided, and liquids must not be partaken of in any quantity during a meal, but should only be drunk after the meal is finished. Confections of all kinds are also pernicious where there is dyspepsia and long-infused tea is also to be avoided. It is hardly necessary to add that where indigestion is present, it is essential that the food be thoroughly masticated and mixed with the salivary secretion before being swallowed.

Digestion

Is the process commencing in the mouth and terminating in the duodenum by which food is rendered fit for nourishing the body. The first stage in the process is mastication, which should in every instance be thoroughly accomplished, as by this means its fine division is secured, which renders it capable of coming in contact thoroughly with the juices which are necessary to act upon it in the process of digestion. By mastication a thorough mixing of food with the salivary secretion is obtained. This secretion is most important where farinaceous articles are concerned, therefore bread, potatoes, and food containing starchy matter should come thoroughly in contact with the saliva before being swallowed. When the food is swallowed it comes in contact with the gastric juice, and by a peculiar worm-like movement of the stomach it is kept constantly moving to and fro until all the albuminous portions have been digested and the contents of the stomach converted into chyme. The chyme then passes into the duodenum, where it comes in contact with

the bile and pancreatic juices, the fatty matters there becoming emulsionized. The digested food is thus transformed into chyle, after which it is taken up by the lacteal vessels and conveyed to the blood as nourishment. The unassimilated portion of the ingesta then passes into the large intestine or colon, where it becomes acid and mixed with the feculent excretion from the glands of that bowel, and is thereafter discharged as excrement. Digestion will thus be seen to be very much facilitated by thorough mastication, while the organs of digestion are kept in healthy vigor by the nervous apparatus controlling their secretions being supplied by a pure blood; hence the necessity of a daily evacuation of the bowels. If this is not regularly accomplished absorption of the foetid liquid takes place, and the blood thereby becomes contaminated. This vitiated blood circulates through the nervous system, and naturally has a prejudicial effect upon their activity; thus not only are general symptoms of nervous depression persistent if the bowels are not acted upon daily, but likewise the nerves stimulating the gastric and other glands are deprived of their normal power, and hence the secretions become reduced in quantity as well as in quality. The salivary glands are stimulated and become active when the process of mastication is going on, the saliva being poured out in sufficient quantities to completely saturate the food which is undergoing mastication. It is therefore quite unnecessary to imbibe any fluids during eating, as this only dilutes the natural gastric juices, and renders them less efficient in consequence. The salivary secretion, as before stated, acts in a chemical manner upon the starchy components of the food, converting them into sugar, by which

transition they become fitted for absorption. Starch, on the other hand, cannot pass into the blood as nourishment.

Digestion—Good.

The buoyancy of health is a real enjoyment. Strength, mental vigor, vivacity and good nature spring from good digestion. Good digestion is secured only from eating and drinking proper quantities of food and liquid. It is possible to enjoy buoyancy of spirit and a good appetite every day.

There is nothing more delightful than hunger when you know it will soon be satisfied with good food. Persons who are convalescent find great pleasure in eating. Then after a time they overeat, and the pleasure is gone. Drugs are often resorted to for relief.

The relief from drugs is very temporary; then others are experimented with. If the diet question was understood and practiced there would be little misery. If proper exercise, food, fresh air, self-massage and pleasurable pastimes were indulged in people would be better.

Few people give attention to the study of hygiene until they find their health failing. If they could realize the importance of spending twice the amount in prevention which it costs to cure, they would be far wealthier, wiser and healthier.

Diphtheria.

Diphtheria is essentially a disease due to bad sanitation, and is, therefore, preventible in every instance. The *casus morbi* is a fungoid growth, whose spores are deposited upon the tonsils or fauces. These spores do not reach their seat of attack by the atmosphere, but must be conveyed to the spot either by the saliva, food, or drinking water. This disease never occurs in

a person who is of robust health, but is generally associated with a vitiated atmosphere contained within the dwelling, and which is, as a rule, due to the escape of sewage gas into the apartment or apartments inhabited by the individual. The inhalation of such gases for a prolonged period has the natural effect of debilitating the human frame and rendering it susceptible to disease, while these gases, when absorbed into water, convey to that fluid the power of sustaining and nourishing the disease-producing germs.

Symptoms.—The first indications of diphtheria are lethargy combined with a slow and weak pulse, which is followed in a day or two by sore throat and feverish symptoms. When the throat is examined a small ulcer of a yellowish-white color may be detected upon some part of it; this rapidly spreads in area until not only the throat but the pharynx and larynx may likewise be covered with the deposit.

The first thing to do when the disease is suspected is to send for a physician and have him use the anti-diphtheric serum, which is an absolute cure in the first 24 hours.

Treatment.—When the disease is in the throat alone it is readily destroyed by the application of strong antiseptics, such as carbolic acid, boric acid, perchloride of iron, sulphurous acid, and other germicides. While it is essential that the general health be also carefully looked after, and copious supplies of nourishment should be administered at frequent intervals, stimulants too should be freely administered, so as to enable the system to resist and overcome the disease. When diphtheria has located itself on the throat, it is at first only a local affection, but in process of time the filaments of the fungus which characterize the disease penetrate the mucous

surface and insinuate themselves into the blood vessels, and it is then that the dreadful characteristics of the disease so rapidly develop. When once the disease germs have been permitted to enter the blood, the most dangerous stage of the disease may be said to have been arrived at. Our object, then, should always be to prevent this catastrophe by energetic, persistent, and repeated attacks being made upon the disease before it has become constitutional; in other words, we should endeavor in every instance to attack the disease and destroy it in its initial stage, and prevent its invading the circulation. This can only be accomplished by the energetic application of antiseptics to the primary ulcer. As a rule, if these injunctions are strictly followed out, diphtheria will be found most amenable to treatment, whereas, if time is allowed to elapse without the local remedies being actively employed, the disease becomes one of the most malignant and fatal that flesh is heir to. The following application will be found to be most efficacious in destroying the micro-organism when it has deposited itself on the throat, viz.: Equal portions of strong liquid of the per-chloride of iron, sulphurous acid, glyceride of carbolic acid, and pure glycerine; this should be applied to the ulcers every two hours by means of a camel's hair pencil, while a mixture containing five drachms of sulphurous acid, five drachms of the tincture of the muriate of iron, two and a half drachms of chlorate of potash, two and a half drachms of salicine, and water to make eight ounces should be given in tablespoonful doses every two hours, so that the application and the medicine are given at alternate hours, thus bringing the remedy in contact with the diseased surface every hour. Of course, simultaneously, the patient

should be well nourished by frequently partaking of strong soups, egg flip, and port wine. Diphtheria, however, is a disease involving so much danger that it is absolutely necessary that every individual case be placed in the hands of a competent physician. While diphtheria is most commonly a throat disease in its first stages, it may be conveyed to other mucous surfaces, such as the eye, nose, vagina, and bowel, in which instances, of course, suitable local measures will require to be employed, all of which must necessarily be antiseptic. A useful adjunct to local and general treatment will be found in keeping the air of the apartment in which the patient is confined saturated with the fumes of eucalyptus, which may be conveyed to the patient by means of steam impregnated with the oil issuing from a bronchitis kettle.

Disinfectants—or Antiseptics.

Disinfectants, or antiseptics, are preparations which have the effect of destroying the germs of disease. There are several natural disinfectants, such as pure air, sunshine, and good ventilation. Disinfectants must always be distinguished from aseptics: e. g. water, as a rule, contains germs which may be morbid in their action or not, but if this water is boiled, the vitality of the germs is thereby destroyed, and thus the water is rendered aseptic—that is to say, it is deprived of the power of producing poisonous effects upon the individual drinking it. Disinfectant, therefore, in reality means the power of destroying the potency of certain low forms of microscopic life. Among the most powerful antiseptics are bi-chloride of mercury, carbolic acid, creasote, thymol, aristol chlorine, acetic acid, sulphurous acid, chloral, chloroform, alcohol, and many others. The direct effect of these agents is to destroy the vitality of the

germs which give rise to disease. If we wish to isolate a patient who is suffering from a contagious disorder, the ordinary plan would be to hang a sheet over the door of the apartment in which the patient is confined, and keep this sheet saturated with a solution of carbolic acid. By this means all air passing from that room will naturally be deprived of its disease-producing constituents, in consequence of the destructive effect of the carbolic acid upon the germs. Disinfectants are also employed as local applications in certain diseases, such as aphtha, diphtheria, furunculus or boils, small-pox, and all the exanthemata during convalescence. In the latter circumstances disinfectants are applied to the skin, so as to disinfect the scales which are thrown off by the cuticle. Again, offensive odors arising from putrescence of any kind may be destroyed by the free use of certain disinfectants, which in this instance are termed deodorants, simply from the power which these agents have of destroying the organisms which give rise to the foetid stench which is generated by decomposition.

Disinfectants.

Quicklime to absorb moisture and putrid fluids. Use fresh stone lime, finely powdered; sprinkle it on the place to be dried, and in damp rooms place a number of plates or pans filled with the lime powder. Whitewash with pure lime, and not with kalsomine.

Charcoal powder to absorb putrid gases. The coal must be dry and fresh, and should be combined with lime. This compound is the "calx powder", as sold in the shops.

Chloride of lime to give off chlorine, to absorb putrid effluvia and to stop putrefaction. Use it as lime is used, and if in cellars or close rooms the chlorine gas is wanted, pour strong

vinegar of diluted sulphuric acid upon your plates of chloride of lime occasionally, and add more of the chloride.

Sulphate of iron (copperas) and carbolic acid to disinfect the discharges from cholera patients and to purify water closets and drains. Dissolve 8 or 10 pounds of copperas in a common pailful of water, and pour this strong solution into the water closets or drain, every hour, if cholera discharges have been thrown in those places; but for ordinary use, to keep privies or water closets from becoming offensive, pour a pint of this solution into every water-closet pan or privy seat every night and morning. If there is cholera in the house or district, let carbolic acid be added to this iron solution—one half pint of the fluid acid to five gallons of the solution. Bed-pans and chamber-vessels are best disinfected with this mixed solution using a gill at a time.

Potassium permanganate (permanganate of potassa), to be used in disinfecting clothing and towels from cholera and fever patients, during the night, or when such articles cannot be instantly boiled. Throw the soiled articles immediately into a tub of water in which there has been dissolved an ounce of the permanganate salt to every three gallons of water. Boil the clothing as soon as it is removed from this colored solution.

Carbolic Acid (fluid) may be diluted at the rate of from forty to one hundreds parts of water to one of fluid acid. Use this solution for the same purposes as copperas is used; also to sprinkle upon any kind of garbage or decaying matter, and on foul surfaces or in drains. When used to disinfect clothing, carbolic acid of good quality should be thoroughly mixed with its own quantity of strong vinegar, and next be dissolved in two hundred times its own quantity of water, before the

clothing is immersed in it. This mixture with vinegar insures such complete solution of the carbolic acid that the clothing will not be "burned" by undissolved drops of acid when disinfected in the carbolic water. This weak solution, (1 part to 200), will not injure common clothing. But to destroy clothing as well as infection, instantly, use the acid diluted only ten to thirty times in its own quantity of water. The disinfecting and antiseptic power of good carbolic acid is so great that one part of it to fifty or one hundred parts of water is sufficient for ordinary purposes. For drains, sewers, foul heaps, stables, and privies, the cheap "dead oil" of coal tar or the crude carbolic acid answers every purpose when freely applied.

Coal Tar itself is available as a disinfectant to paint upon the walls of stables, privy vaults and drains. By mixing with sawdust or dry lime, coal-tar or crude acid may be used on foul grounds or heaps of refuse.

Boiling, or high steam Heat.—Whenever foul clothing and infected things can be boiled, or have a boiling heat steadily applied and kept up for an hour, this is one of the simplest and best modes of disinfection. But until such high heat is actually applied to the infected things, some one of the disinfecting solutions must be used. A common steam tub (in a laundry or elsewhere) with a tight cover is a good disinfecting vat.

Disinfected—Things to be.

First—things that should be disinfected are: Beds, bedding, and upholstered stuffs. Expose to sunlight and ventilation freely and frequently. If actually infected, thoroughly moisten every part with best solution of permanganate of potassa or carbolic acid solution. Second—Soiled clothing, etc., from the sick with cholera

or any contagious disease. Use solution permanganate of potassa or carbolic acid solution precisely as directed, and as soon as the soiled articles are removed from the patient; or immerse them at once in boiling water. In any case of infectious disease the clothing must be boiled previous to washing or drying. Infected clothing must be thrown into the water at boiling heat, and that temperature should be kept up for an hour. Third—Carpets, sofas, lounges, mattresses, floors, etc., infected by cholera excrement or small-pox and other contagions.

Process.—Thoroughly moisten every infected thing with one of the carbolic or permanganate solutions.

Another.—To give still greater completeness to the disinfection required for an infected apartment and thick, woolen stuffs, carpets, etc., to which boiling heat cannot be applied, fumigate with sulphurous acid, thus: Arrange to vacate the room for twelve hours; close every window and aperture, and upon an iron pipkin or kettle with legs, burn half a pound of sulphur for every 50 cubic feet of space in the room. Instantly after kindling it every person must withdraw from the place, and the room must remain closed for succeeding eight hours. If any other kind of fumigation is resorted to (as that by chlorine, bromine or nitrous acid), a sanitary officer should superintend the process. Fumigation should be resorted to in dwelling houses only by official orders or permission, as the disinfecting gases are very poisonous. Finally let fresh air and sunlight purify every place they can reach. Open and dry all cellars and vaults, and keep the grounds and surfaces about dwellings as dry and clean as possible. Use fresh lime or the "calx powder" freely upon wet or

offensive surfaces. Flush the water-closets and drains daily before throwing in the disinfectants as directed. Let domestic and personal cleanliness be everywhere observed. There are no substitutes for fresh air and water.

Dizziness.

This may come from dyspepsia, over-exertion, or any derangement of the circulation. Avoid the cause, and keep the feet warm, and head cool.

Dose or Posological Tables

Or rules for administering medicines, having reference to Age and Sex. When for an adult (a person of 40 years) the dose is allowed to be about 1 drachm, 60 grains.

Those at 20 years, 2-3 of a dr., 40 grains.

"	13	"	1-2	"	30	"
"	7	"	1-3	"	20	"
"	4	"	1-4	"	15	"
"	3	"	1-6	"	10	"
"	2	"	1-8	"	7 to 8	"
"	1	"	1-12	"	5 to 8	"

For babes under 1 year, the dose should go down by months, at the same rate as by years for those over a year.

Again for persons in advanced life, say from 60 years, the dose must begin to lessen about 5 grains, and, from that on, 5 grains for each additional 10 years.

Females, however, need a little less, generally, than males.

The above rules hold good in all medicines except castor oil, the proportion of which cannot be reduced so much, and opium and its various preparations, which must be reduced, generally, in a little greater proportion.

Drainage.

Drainage, as applied in surgery, has special reference to the removal of fluids which are secreted in cavities such as abscesses and after-operations.

If free drainage is not induced, the fluids which are secreted, either in the cavity of an abscess which has been opened or in that which has been produced by the removal of unhealthy tissue, may decompose and produce constitutional effects which would otherwise be obviated. Drainage, of course, is a term more largely employed with reference to the hygienic conditions essential to the preservation of health, and in this instance has special reference to the removal of superabundant fluids from the surface of the soil, and also to the removal of soil from dwelling-houses. In the drainage of houses it is essential that all fluids which do not contain decomposing matter should be emptied into the sewage pipes without being connected with them; e. g. all liquids emanating from baths, wash-hand basins, and sinks, should have no direct connection with the sewer pipes. On the other hand, it is necessary that the drainage of water-closets should be conducted into the main sewer; but previous to their junction with this channel they should be so ventilated that any gases emanating from the main sewage system will be permitted to escape into the open atmosphere, and not by virtue of a continuity of pipe be permitted to enter the dwelling-house. The complete severance of the drainage system of a house from that of the sewer is essential to the health of the individuals inhabiting the dwelling; and this, of course, can only be brought about by the introduction of traps which are thoroughly open to the outside air. The certainty of removing such a contingency as the admission of sewer gas into a house is so easily accomplished that it would simply amount to criminality in any builder to permit such a catastrophe to occur. Of course, it goes

without saying that the sewage pipes within the dwelling should be thoroughly impervious to the escape of gas; and to provide against the risk of this occurring, the drains should be periodically tested, so that it may be ascertained, at least once a year, whether they are in perfect working order. If this rule be adopted, serious consequences arising from sewage contamination may always be avoided, and thereby not only illness prevented, but valuable lives saved.

For Water Closet Drains.

Flush them frequently and wash down with chloride of lime, half pound to a gallon of water, or carbolic powder in same proportion; or Condy's fluid, two tablespoonfuls to a gallon of water.

Borax.—Alone or dissolved in water, and used freely to pour down closets, sinks, etc., it removes all noisome smells, acting as a purifier, and rendering even impure water wholesome. It should be used frequently where sewer gas is suspected.

Potassium Permanganate of Potash is a most convenient and useful disinfectant. It is cheap, and a small bottle of the crystals should always be kept in the house. For general purposes, one teaspoonful of the crystals dissolved in a gallon of water is the best strength.

Drastic Measures.

Drastic is a term applied to severe measures, and also to purgatives which act in an energetic manner, such as croton oil, scammony, jalap, etc.

Dressing, Surgical.

Dressing, as applied to surgery, means the application of certain substances, either in a simple form or combined with some medicinal substance which renders their action more efficacious; e. g., dry dressings are applied

to certain wounds where absorption of discharges is required. These dressings are always, or ought always to be, rendered antiseptic by previous immersion in some fluid which has a destructive effect upon micro-organisms. Until within the past few years wet dressings were largely employed in the treatment of wounds, whether these were surgical or due to injury. Nowadays dry dressings are very much more in vogue, and these are invariably associated with antiseptic substances which prevent decomposition, while the dressings absorb the discharges. The most important point to be attended to in the dressing of wounds is to procure as rapid healing of the raw surface as possible, and this can only be induced by keeping down the decomposition of the fluids which naturally exude from a wounded surface. It is therefore customary to, first of all, make the wound aseptic by the application of antiseptic fluids, such as bi-chloride of mercury, carbolic acid, iodoform, or aristol. When this has been effected the wound is dusted over with an antiseptic powder, such as boracic acid, aristol, or iodoform. The most efficacious, however, is aristol, and when it is combined with cocaine, say in the proportion of five or ten per cent., the pain of the wound entirely disappears in consequence of the anæsthetic effect of the cocaine upon the cut surface. When aristol is judiciously employed in the dressing of wounds we frequently find that these heal without the slightest difficulty; indeed if it is properly applied, we will invariably have union taking place without any appearance of suppuration. The best dressing for wounds is what is usually called blue gauze because of its being saturated with a solution of bi-chloride of mercury, which is probably one of the most powerful antiseptics we possess. A wound

dressed with this substance and in the manner which has been indicated will frequently not require to be looked at for a week afterwards, when in all probability it will be found that complete union has taken place, and that no further treatment is necessary.

Dropsy.

Dropsy is the effusion of the watery constituents of the blood, and is invariably due to an imperfect circulation through the veins. When dropsy occurs in the limbs it may be detected by pressure applied to the swollen part, in which case the indentation produced by the fingers remains for a considerable time after the pressure has been removed. This is called pitting, and technically this form of dropsy is termed *Anasarca*. When dropsy occurs in the cavity of the abdomen it is generally due to the obstruction of the venous circulation of the liver, or some inflammatory condition of the peritoneum which interferes with the complete circulation of the blood in this membrane, and in consequence oozing of the watery constituents of the blood into the peritoneal cavity takes place. This form of dropsy, as well as that of the limbs, is frequently coincident with heart disease and with Bright's disease of the kidneys, but in every instance it depends upon an incommoded circulation of the veins. Dropsy in the chest, or hydro-thorax, is the direct outcome of pleurisy which has not been cured in its acute stages, or it may arise from pressure upon the large veins which pass through the thorax in their progress towards the heart. When dropsy of the limbs, or *anasarca*, occurs, it, of course, is necessary in every instance to ascertain the immediate cause, and this should be treated with remedies which will tend

to remove the cause of obstruction; e. g., if the kidneys are at fault it will be necessary to employ diuretics with a view to increase the action of these organs, and also purgatives to relieve them as much as possible of the burden which naturally devolves upon them, while at the same time the circulation should be relieved by keeping the limbs in a horizontal position. If abdominal dropsy, or *ascites*, exists, the same remedies should be employed as in the case of dropsy of the limbs, but it will often be found that the most expeditious way of removing the fluid is by tapping. The same applies to dropsy of the chest. This operation can now be performed with such safety, and with so much freedom from inconvenience, not to say pain, that it seems absurd to rely on medicinal agents when such an expeditious method of getting quit of the fluid can be adopted. Dropsy is such an important and serious ailment that it would be wrong to endeavor to treat it without the aid of medical science; therefore, in every case of dropsy medical aid should be immediately called in. Among the most useful diuretics in the treatment of dropsy are digitalis, diuretin, cream of tartar, acetate of potash, infusion of broom, etc., together with saline purgatives.

Drinks—Cooling.

Tamarind No. 1.—Boil two ounces of the pulp of tamarinds in two pints of milk, then strain.

Tamarind No. 2.—Boil two ounces of the pulp in two pints of warm water and allow it to get cold, then strain.

Drinking in Summer.

If very thirsty, sip; do not gulp; especially if drinking iced water. The sudden deaths while drinking, frequently recorded in summer, are due

to paralysis of the stomach, produced by drenching it suddenly with iced water. By sipping, thirst is more thoroughly quenched and less water is needed; for all seasons the quantity taken is an important matter, nearly as important as the temperature.

Remember, your health depends as much, or more, on what you drink than on what you eat. The numerous artificial beverages supplied nowadays are very palatable and put up in attractive form; but beware of them if you would enjoy health.

Pure lemonade is a good, safe drink in summer, if pure water is not enough. Take one or two lemons, as the appetite craves, in as much water as will make it pleasant to drink without sugar. The sweet drinks increase thirst.

Drowning—To Afford Assistance to a Person in Danger of.

If the spectator is unable to swim, and can make the sufferer hear, he ought to direct him to keep his hands and arms under water until assistance comes; in the meantime, throw towards him a rope, a pole, or anything that may help to bring him ashore or on board; he will eagerly seize whatever is put within his reach; thus he may, perhaps, be rescued from his perilous situation.

The best manner in which an expert swimmer can lay hold of a person he wishes to save from sinking, is to grasp his arm firmly between the shoulder and the elbow; this will prevent him from clasping the swimmer in his arms and thus forcing him under water, and, perhaps, causing them to sink together.

Drowned Person—To Resuscitate.

Attend to the following essential rules:

Lose no time.

Handle the body gently.

Carry the body face downwards, with the head gently raised, and never hold it up by the feet.

Send for medical assistance immediately, and in the meantime act as follows:

Strip the body, rub it dry; then wrap it in hot blankets, and place it in a warm bed in a warm room.

Cleanse away the froth and mucus from the nose and mouth.

Apply warm bricks, bottles, bags of sand, etc., to the armpits, between the thighs, and to the soles of the feet.

Rub the surface of the body with the hands enclosed in warm, dry worsted socks.

If possible, put the body into a warm bath.

To restore breathing, lay patient on his back, raising head and shoulders by placing a folded coat or other garment under him, put the pipe of a common bellows into one nostril, carefully closing the other and the mouth; at the same time drawing downwards and pushing gently backwards, the upper part of the windpipe, to allow a more free admission of air; blow the bellows gently, in order to inflate the lungs, till the breast be raised a little; then set the mouth and nostrils free, and press gently on the chest; repeat this until signs of life appear.

Or induce artificial respiration by Silvester's method—viz.: stand at head of patient, grasp both arms above elbows and raise them slowly above the patient's head, keeping them there for two seconds (this expands the chest and air is admitted to the lungs), the feet being held; then quickly lower arms and press into sides of chest and repeat this movement about every five seconds until the patient shows signs of returning respiration. This is usually denoted by a flush of color in the face.

The body should be covered the moment it is placed on the table, except the face, and all the rubbing carried on under the sheet or blanket. When they can be obtained, a number of tiles or bricks should be made tolerably hot in the fire, laid on a row on the table, covered with a blanket, and the body placed in such a manner on them that their heat may enter the spine. When the patient revives, apply smelling salts to the nose, give warm wine or brandy and water.

Cautions.—Never rub the body with salt or spirits. Never roll the body on casks. Continue the remedies for twelve hours without ceasing.

Drugs—Their Doses and Properties.

The various drugs are arranged according to their properties, and the doses of each for adults are given. Many, however, have been necessarily omitted from each class, because they should not be employed except by a physician.

They are divided into four grand classes:

1. General Stimulants.
2. Local Stimulants.
3. Chemical Remedies.
4. Mechanical Remedies.

General stimulants are subdivided into two classes, diffusible and permanent stimulants: the first comprising Narcotics and Antispasmodics, and the second Tonics and Astringents.

Narcotics are medicines whose effects stupefy and diminish the activity of the nervous system. Given in small doses, they generally act as stimulants, but an increased dose produces a sedative effect. Under this head are included alcohol, camphor, ether, the hop, and opium.

Alcohol, or rectified spirit, is a very powerful stimulant, and is never used as a remedy without being

diluted to the degree called proof spirit; and even then it is seldom used internally. It is used externally in restraining bleeding, when there is not any vessel of importance wounded; and also for all bruises and sprains, when diluted to one in three parts of water. It is also used as a lotion for burns, and is applied by dipping a piece of lint into the spirit, and laying it over the part. Freely diluted (one part to eighteen) with water, it forms a useful eye-wash in the last stage of ophthalmia. Used internally, it acts as a very useful stimulant when diluted and taken moderately, increasing the general excitement, and giving energy to the muscular fibres; hence it becomes very useful in certain cases of debility, especially in habits disposed to create acidity; and in the low stage of all fevers. **Dose.**—It is impossible to fix anything like a dose for this remedy, as much will depend upon the individual; but diluted with water and sweetened with sugar, from half-an-ounce to two ounces may be given three or four times a day. In cases of extreme debility, however, much will depend upon the disease.

Caution.—Remember that alcohol is an irritant poison, and that daily indulgence in its use originates dyspepsia, or indigestion, and many other serious complaints. Of all kinds of spirits the best as a tonic and stomachic is brandy.

Camphor is not a very steady stimulant, as its effect is transitory; but in large doses it acts as a narcotic, abating pain and inducing sleep. In moderate doses it operates as a diaphoretic, diuretic, antispasmodic, increasing the heat of the body, allaying irritation and spasm. It is used externally as a liniment when dissolved in oil, alcohol or acetic acid, being employed to allay rheumatic pains;

and it is also useful as an embrocation in sprains, bruises, chilblains, and, when combined with opium, it has been advantageously employed in flatulent colic, and severe diarrhœa, being rubbed over the bowels. When reduced to fine powder, by the addition of a little spirit of wine and friction, it is very useful as a local stimulant to indolent ulcers, especially when they discharge a foul kind of matter; a pinch is taken between the fingers and thumb, and sprinkled into the ulcer, which is then dressed as usual. When dissolved in oil of turpentine, a few drops placed in a hollow tooth and covered with absorbent cotton, or scraped lint, give almost instant relief to toothache. Used internally, it is apt to excite nausea, and even vomiting, especially when given in the solid form. As a stimulant it is of great service in all low fevers, malignant measles, malignant sore throat, and confluent small-pox; and when combined with opium and bark, it is extremely useful in checking the progress of malignant ulcers, and gangrene. As a narcotic, it is dangerous, as it may produce rapid depression referable to the heart. When powdered and sprinkled upon the surface of a blister, it prevents the cantharides acting in a peculiar and painful manner upon the bladder. Combined with senna, it increases its purgative properties; and it is also used to correct the nausea produced by squills, and the irritating effects of drastic purgatives and mezereon. Dose, from four grains to half-a-scruple, repeated at short intervals when used in small doses, and long intervals when employed in large doses. Doses of various preparations.—Camphor mixture, from half-an-ounce to three ounces; compound tincture of camphor (paregoric elixir), from fifteen minims to two drachms.

Caution.—When given in an overdose it acts as poison, producing vomiting, giddiness, delirium, convulsions, and sometimes death. Opium is the best antidote for camphor, whether in excess or taken as a poison.

Mode of Exhibition.—It may be mixed with almond emulsion, or mucilage, or the yolk of eggs, and by this means suspended in water, or combined with chloroform as a mixture, in which form it is a valuable stimulant in cholera and other diseases.

Ether is a diffusible stimulant, narcotic, and antispasmodic.

Sulphuric Ether is used externally both as a stimulant and a refrigerant. In the former case its evaporation is prevented by covering a rag moistened with it with oiled silk, in order to relieve headache, and in the latter case it is allowed to evaporate, and thus produce coldness; hence it is applied over scalded surfaces by means of rags dipped in it. As a local application, it has been found to afford almost instant relief in earache, when combined with almond oil, and dropped into the ear. It is used internally as a stimulant and narcotic in low fevers and cases of great exhaustion. Dose, from fifteen minims to half a drachm, repeated at short intervals, as its effects soon pass off. Give in a little camphor julep, or water.

Nitric Ether is a refrigerant, diuretic, and antispasmodic, well known as "sweet spirits of nitre." Used externally, its evaporation relieves headache, and it is sometimes applied to burns. It is used internally to relieve nausea, flatulence, and thirst in fevers; also as a diuretic. Dose, from ten minims to one drachm. The smaller dose taken in a little warm water or gruel is useful as a sudorific in cases of cold and chill, to induce and promote the proper action of the skin, which has been

checked. If a larger dose be taken, it acts as a diuretic and not as a sudorific, and so fails to produce the desired effect.

Compound Spirit of Sulphuric Ether is a very useful stimulant, narcotic, and antispasmodic. Used internally in cases of great exhaustion attended with irritability. Dose, from half a drachm to two drachms, in camphor julep. When combined with laudanum, it prevents the nauseating effects of the opium, and acts more beneficially as a narcotic.

The Hop is a narcotic, tonic, and diuretic; it reduces the frequency of the pulse, and does not affect the head, like most anodynes. Used externally, it acts as an anodyne and discutient, and is useful as a fomentation for painful tumors, rheumatic pains in the joints, and severe contusions. A pillow stuffed with hops acts as a narcotic. When the powder is mixed with lard, it acts as an anodyne dressing in painful ulcers. Dose, of the extract, from five grains to one scruple; of the tincture, from half a drachm to two drachms; of the powder, from three grains to one scruple; of the infusion, half an ounce to one and a half ounces.

Opium is a stimulant, narcotic, and anodyne. Used externally it acts almost as well as when taken into the stomach, and without affecting the head or causing nausea. Applied to irritable ulcers in the form of tincture, it promotes their cure and allays pain. Cloths dipped in a strong solution, and applied over painful bruises, tumors, or inflamed joints allay pain. A small piece of solid opium stuffed into a hollow tooth relieves toothache. A weak solution of opium forms a valuable collyrium in ophthalmia. Two drops of the wine of opium dropped into the eye act as an excellent sedative in blood-shot eye, or after long-continued in-

flammation, it is useful in strengthening the eye. Applied as a liniment, in combination with ammonia and oil, or with camphorated spirit it relieves muscular pain. When combined with oil of turpentine, it is useful as a liniment in spasmodic colic. Used internally, it acts as a very powerful stimulant; then as a sedative, and finally as an anodyne and narcotic, allaying pain in the most extraordinary manner, by acting directly upon the nervous system. In acute rheumatism it is a most excellent medicine when combined with calomel and tartrate of antimony; but its exhibition requires the judicious care of a doctor. Doses of the various preparations. Confection of opium, from five grains to half a drain; extract of opium from one to five grains (this is a valuable form, as it does not produce so much after derangement of the nervous system as solid opium); pills of soap and opium, from five to ten grains; compound ipecacuanha powder ("Dover's Powder"), from ten to fifteen grains; compound kino powder, from five to fifteen grains; wine of opium, from ten minims to one drachm.

Caution.—Opium is a powerful poison when taken in too large a quantity (See "Poisons") and thus should be used with extreme caution. It is on this account that we have omitted some of its preparations. The best antidote for opium is camphor or strong coffee, and generally stimulating the patient. Potassium permanganate in half grain doses acts as a powerful antidote.

Antispasmodics.

Antispasmodics are medicines which possess the power of overcoming the spasms of the muscles, or allaying any severe pain which is not attended with inflammation. The class includes a great many, but the most safe and serviceable are ammonia, assafoetida, gal-

banun, valerian, Peruvian bark, ether, camphor, opium, and chloroform; with the minerals, oxide of zinc and calomel.

Ammonia, or Sal Volatile, is an antispasmodic, stimulant, and diaphoretic. Used externally, combined with oil, it forms a cheap and useful liniment, but it should be dissolved in proof spirit before the oil is added. One part of this salt, and three parts of extract of belladonna, mixed and spread upon leather, makes an excellent plaster for relieving rheumatic pains. As a local stimulant it is well known, especially its effects in hysterics, faintness, and lassitude, when applied to the nose, as common smelling salts. It is used internally as an adjunct to infusion of gentian in dyspepsia or indigestion, and in moderate doses in gout. Dose, from five to fifteen grains. Caution.—Overdoses act as a narcotic and irritant poison.

Bicarbonate of Ammonia is used internally the same as sal volatile. Dose, from six to twelve grains. It is frequently combined with Epsom salts.

Solution of Sesquicarbonate of Ammonia, used the same as sal volatile. Dose, from half-a-drachm to one drachm, combined with some milky fluid like almond emulsion.

Assafoetida is an antispasmodic, expectorant, excitant, and anthelmintic. Used internally, it is extremely useful in dyspepsia, flatulent colic, hysteria, and nervous diseases; and where there are no inflammatory symptoms, it is an excellent remedy in whooping cough and asthma. Used locally as an enema, it is useful in flatulent colic, and convulsions that come on through teething. Doses of various preparations.—Solid gum, from five to ten grains as pills; mix-

ture, from half-an-ounce to one ounce; tincture, from fifteen minims to one drachm; ammoniated tincture, from twenty minims to one drachm. Caution.—Never give this drug when inflammation exists.

Galbanum is stimulant, antispasmodic, expectorant, and deobstruent. Used externally, when spread upon leather as a plaster, it assists in dispelling indolent tumors and is useful in weakness of the legs from rickets, being applied as a plaster to the loins. Employed internally, it is useful in chronic or old-standing rheumatism and hysteria. Doses of preparations.—Of the gum, from ten to fifteen grains as pills; tincture, from fifteen minims to one drachm. It may be made into an emulsion with mucilage and water.

Valerian is a powerful antispasmodic, tonic, and excitant, acting chiefly on the nervous centres. Used internally, it is employed in hysteria, nervous languors, and spasmodic complaints generally. It is useful in low fevers. Doses of various preparations:—Powder, from ten grains to half-a-drachm, three or four times a day; tincture, from two to four drachms; ammoniated tincture, from one to two drachms; infusion, from two to three ounces or more.

Peruvian Bark is an antispasmodic, tonic, astringent, and stomachic. Used externally, it is an excellent detergent for foul ulcers, and those that heal slowly. Used internally it is particularly valuable in intermittent fever or ague, malignant measles, dysentery, diarrhoea, intermittent rheumatism, St. Vitus's dance, indigestion, nervous affections, malignant sore throat, and erysipelas; its use being indicated in all cases of debility. Doses of preparations.—Powder, from five grains to two

drachms, mixed in wine, water, milk, syrup, or solution of liquorice; infusion, from one to three ounces; decoction, from one to three ounces; tincture and compound tincture, from one to three drachms. Caution.—If it causes oppression at the stomach, combine it with an aromatic; if it causes vomiting, give it in wine or soda water; if it purges, give opium; and if it constipates, give rhubarb.

Sulphuric Ether is given internally as an antispasmodic in difficult breathing and spasmodic asthma; also in hysteria, cramp of the stomach, hiccough, locked jaw, and cholera. It is useful in checking seasickness. Dose, from twenty minims to one drachm. Caution.—An overdose produces apoplectic symptoms.

Camphor is given internally as an antispasmodic in hysteria, cramp in the stomach, flatulent colic, and St. Vitus's dance. Dose, from two to twenty grains.

Opium is employed internally in spasmodic affections, such as cholera, spasmodic asthma, whooping cough, flatulent colic, and St. Vitus's dance. Dose, from one-sixth of a grain to two grains of the solid opium, according to the disease.

Oxide of Zinc is an antispasmodic, astringent, and tonic. Used externally, as an ointment, it forms an excellent astringent in affections of the eyelids, arising from relaxation; or as a powder, it is an excellent detergent for unhealthy ulcers. Used internally, it has proved efficacious in St. Vitus's dance, and some other spasmodic affections. Dose, from one to six grains twice a day.

Calomel is an antispasmodic, alterative, purgative, and emetic. Used internally, combined with opium, it acts as an antispasmodic in locked jaw, cholera, and many other spas-

modic affections. As an alterative it has been found useful in leprosy and itch, when combined with antimonials and guaiacum, in enlargement of the liver and glandular affections. It acts beneficially in dropsies, by producing watery motions. In typhus it is of great benefit when combined with antimonials; and it may be given as a purgative in almost any disease, provided there is not any inflammation of the bowels, irritability of the system, disease of kidney, or great debility. Dose, as an alterative, from one to five grains, daily; as a cathartic, from five to fifteen grains; to produce ptyalism, or salivation, from one to two grains, in a pill, with a quarter of a grain of opium, night and morning.

Caution.—When taking calomel, exposure to cold or dampness should be guarded against, as such an imprudence would bring out an eruption of the skin, attended with fever. When this does occur, leave off the calomel, and give Peruvian bark, wine, and purgatives; take a warm bath twice a day, and powder the surface of the body with powdered starch.

Tonics.

Tonics are given to improve the tone of the system, and restore the natural energies and general strength of the body. They consist of quassia, gentian, camomile, wormwood, and angostura bark.

Quassia is a simple tonic, and can be used with safety by any one, as it does not increase the animal heat, or quicken the circulation. Used internally, in form of infusion, it has been found of great benefit in indigestion and nervous irritability, and is useful after bilious fevers and diarrhoea. Dose, of the infusion, from one and a half to two ounces, three times a day.

Gentian is an excellent tonic and stomachic; but when given in large

doses, it acts as an aperient. It is used internally in all cases of general debility, and when combined with Peruvian bark is used in intermittent fevers. It has also been employed in indigestion and it is sometimes used, combined with sal volatile, in that disease; but at other times alone, in the form of infusion. After diarrhoea, it proves a useful tonic. Its infusion is sometimes applied externally to foul ulcers. Dose, of the infusion, one and a half to two ounces; of the tincture, one to four drachms; of the extract, from ten to thirty grains.

Chamomile or Camomile. — The flowers of the chamomile are tonic, slightly anodyne, antispasmodic, and emetic. They are used externally as fomentations in colic, faceache, and tumors, and for unhealthy ulcers. They are used internally in the form of infusion, with carbonate of soda, ginger, and other stomachic remedies, in dyspepsia, flatulent colic, debility following dysentery, and gout. Warm infusion of the flowers act as an emetic; and the powdered flowers are sometimes combined with opium or kino, and given in intermittent fevers. Dose, of the powdered flowers, from ten grains to one drachm, twice or thrice a day; of the infusion, from one to two ounces, as a tonic, three times a day; and from six ounces to one pint as an emetic; of the extract, from five to twenty grains.

Wormwood is a tonic and anthelmintic. It is used externally as a discutient and antiseptic. It is used internally in long-standing cases of dyspepsia, in the form of infusion, with or without aromatics. It has also been used in intermittents. Dose, of the infusion, from one to two ounces, three times a day; of the powder, from one to two scruples.

Angostura Bark or Cusparia is a tonic and stimulant. It expels flat-

ulence, increases the appetite, and produces a grateful warmth in the stomach. It is used internally in intermittent fevers, dyspepsia, hysteria, and all cases of debility, where a stimulating tonic is desirable, particularly after bilious diarrhoea. Dose, of the powder, from ten to fifteen grains, combined with cinnamon powder, magnesia, or rhubarb; of the extract, from three to ten grains; of the infusion, from one to two ounces.

Caution.—This drug should never be given in inflammatory diseases or hectic fever.

Astringents.

Astringents are medicines given for the purpose of diminishing excessive discharges, and to act indirectly as tonics. This class includes catechu, kino, oak bark, logwood, rose leaves, chalk, and white vitriol

Catechu is a most valuable astringent. It is used externally when powdered to promote the contraction of flabby ulcers. As a local astringent it is useful in relaxed uvula, a small piece being dissolved in the mouth; small, spotty ulcerations of the mouth and throat, and bleeding gums, and for these two affections it is used in the form of infusion to wash the parts. It is given internally in diarrhoea, dysentery, and hæmorrhage from the bowels. Dose, of the infusion, from one to three ounces; of the tincture, from one to four drachms; of the powder, from ten to thirty grains.

Caution.—It must not be given with soda or any alkali; nor metallic salts, albumen, or gelatine, as its property is destroyed by this combination.

Kino is a powerful astringent. It is used externally for ulcers, to give tone to them when flabby and discharging foul and thin matter. It is

used internally in the same diseases as catechu. Dose, of the powder, from ten to fifteen grains; of the tincture, from one to two drachms; of the compound powder from ten to twenty grains; of the infusion from a half to one and a half ounces.

Caution.—Kino is used in combination with calomel, when salivation is intended to prevent, by its astringency, the action of the calomel on the bowels, and thereby insure its affecting the constitution

Oak Bark is an astringent and tonic. It is used externally in the form of decoction, to restrain bleeding from lacerated surfaces. As a local astringent, it is used in the form of decoction, as a gargle in sore*throat and relaxed uvula. It is used internally in the same diseases as catechu, and when combined with aromatics and bitters, in intermittent fevers. Dose of the powder, from fifteen to thirty grains; of the decoction, from two to eight drachms.

Logwood is not a very satisfactory astringent. It is used internally in diarrhœa, the last stage of dysentery, and a lax state of the intestines. Dose, of the extract, from ten grains to one drachm; of the decoction from one to three ounces, three or four times a day.

Rose Leaves are astringent and tonic. They are used internally in spitting of blood, hæmorrhage from the stomach, intestines, etc., as a gargle for sore throat, and for the night sweats of consumption. The infusion is frequently used as a tonic with diluted sulphuric acid (oil of vitriol), after low fevers, or in combination with Epsom salts and sulphuric acid in certain states of the bowels. Dose of infusion, from two to four ounces.

Chalk when prepared by washing becomes an astringent as well as

antacid. It is used internally in diarrhœa, in the form of mixture, and externally as an application to burns, scalds and excoriations. Dose of the mixture, from one to two ounces.

White Vitriol or Sulphate of Zinc is an astringent, tonic, and emetic. It is used externally as a collyrium for ophthalmia (See Eye Washes); it is also very efficacious as a detergent for scrofulous ulcers, in the proportion of three grains of the salt to one ounce of water. It is used internally in indigestion, and many other diseases; but it should not be given unless ordered by a doctor, as it is a poison.

Local Stimulants.

Local stimulants comprise **Emetics, Laxatives and Purgatives, Diuretics, Diaphoretics, Expectorants, Sialogogues, Epispastics, and Rubefacients.**

Emetics are medicines given for the purpose of causing vomiting, as in cases of poisoning. They consist of ipecacuanha, chamomile, antimony, copper, zinc, and several others.

Ipecacuanha is an emetic, diaphoretic, and expectorant. It is used internally to excite vomiting, in doses from ten to twenty grains of the powder, or one to one and a half ounces of the infusion, every half-hour until vomiting takes place. To make it act well and easily, the patient should drink half pints of warm water after each dose of the infusion. As a diaphoretic, it should be given in doses of three grains, mixed with some soft substance, such as crumbs of bread and repeated every four hours. In dysentery it acts like a charm, but must be given in doses of twenty to thirty grains repeated every three or four hours. Dose of the wine, from twenty minims to one drachm as a diaphoretic, and from one drachm to one and a half ounces as an emetic. **Caution.**—Do not give more than the

doses named above, because, although a safe emetic, yet it is an acrid narcotic poison.

Mustard is too well known to require describing. It is an emetic, diuretic, stimulant, and rubefacient. It is used externally as a poultice, in cases where a stimulant is required, such as sore throats, rheumatic pains in the joints, cholera, cramps in the extremities, diarrhœa, and many other diseases. Mustard poultices are made of the powder, bread crumbs, and water; or of one part of mustard to two of flour; or, especially for children, of linseed meal, mixed with a little of the powder, or having some of the powder slightly sprinkled on the surface. Sometimes a little vinegar is added under the idea that it increases the strength of the poultice, but this is not necessary. When applied it should not be left on too long, as it is apt to cause ulceration of the part. From ten to thirty minutes is quite long enough. When used internally as an emetic, a large teaspoonful mixed with the tumbler of warm water generally operates quickly and safely, frequently when other emetics have failed. In dropsy it is sometimes given in form of whey, which is made by boiling half-an-ounce of the bruised seeds in a pint of milk, and straining off the curd. From three to four ounces of this is to be taken for a dose three times a day.

Laxatives and Purgatives.

Manna, tamarinds, castor oil, sulphur, and magnesia are laxatives; senna, rhubarb, jalap, colocynth, buckthorn, aloes, cream of tartar, scammony, calomel, Epsom salts, Glauber's salts, sulphate of potash, and Venice turpentine are purgatives.

Manna is a very gentle laxative, and therefore used for children and delicate persons. Dose for children,

from one to two drachms; and for adults, from one to two ounces, combined with rhubarb and cinnamon water.

Tamarinds are generally laxative and refrigerant. As it is agreeable, this medicine will generally be eaten by children when they will not take other medicines. Dose, from half to one ounce. As a refrigerant beverage in fevers it is extremely grateful.

Castor Oil is a most valuable medicine, as it generally operates quickly and mildly. It is used externally, combined with citron ointment, as a topical application in common leprosy. It is used internally as an ordinary purgative for infants, as a laxative for adults, and in diarrhœa and dysentery. In colic it is very useful and safe; and also after delivery. Dose for infants, from forty drops to two drachms; for adults, from half-an-ounce to one and a half ounces.

Sulphur.—Sublimed sulphur is laxative and diaphoretic. It is used externally in skin diseases, especially itch, both in the form of ointment and as a vapor bath. It is used internally in hemorrhoids, combined with magnesia, as a laxative for children, and as a diaphoretic in rheumatism. Dose from one scruple to two drachms, mixed in milk or with syrup. When combined with an equal proportion of cream of tartar, it acts as a purgative.

Magnesia.—Calcined magnesia possesses the same properties as the carbonate. Dose, from ten to thirty grains, in milk or water. Carbonate of magnesia is an antacid and laxative, and is very useful for children when teething, and for heartburn in adults. Dose, from a half to two drachms, in water or milk. Fluid Magnesia is a useful preparation by whose use is

avoided the grittiness that is inseparable from magnesia when taken in the form of powder.

Senna is a purgative, but is apt to gripe when given alone; therefore it is combined with some aromatic, such as cloves or ginger, and the infusion should be made with cold instead of hot water. It usually acts in about four hours, but its action should be assisted by drinking warm fluids. Dose, of the confection, commonly called "lenitive electuary," from one to three or four drachms at bedtime; of the infusion, from one to two ounces; of the tincture from one to two drachms; of the syrup (used for children), from one drachm to one ounce.

Caution.—Do not give senna, in any form except confection, in hemorrhoids, and never in irritability of the intestines.

Rhubarb is a purgative, astringent, and stomachic. It is used externally in the form of powder to ulcers, to promote a healthy action. It is given internally in diarrhoea, dyspepsia, and a debilitated state of the bowels. Combined with a mild preparation of calomel, it forms an excellent purgative for children. Dose, of the infusion, from one to two ounces; of the powder, from one scruple to half-a drachm as a purgative, and from six to ten grains as a stomachic; of the tincture and compound tincture, from one to four drachms; of the compound pill, from ten to twenty grains.

Jalap is a powerful cathartic and hydrogogue, and is therefore apt to gripe. Dose, of the powder, from ten to thirty grains, combined with a drop or two of aromatic oil; of the compound powder, from fifteen to forty grains; of the tincture, from one to three drachms; of the extract, from

ten to twenty grains. The watery extract is better than the alcoholic.

Colocynth is a powerful drastic cathartic, and should never be given alone, unless ordered by a doctor, as its action is too violent for some constitutions. Dose, of the extract, from five to fifteen grains; of the compound extract, from five to fifteen grains; of the compound colocynth pill, the best of all its preparations, from ten to twenty grains.

Buckthorn is a brisk purgative for children in the form of syrup. Dose of the syrup, from one to six drachms.

Aloes is a purgative and cathartic in large, and tonic, in smaller doses. Dose, of powder, from two to ten grains, combined with soap, bitter extracts or other purgative medicine and given in the form of pill; of the compound pill, from five to twenty grains; of the pill of aloes and myrrh, from five to twenty grains; of the tincture, from four drachms to one ounce; of the compound tincture, from one to four drachms; of the extract, from six to ten grains; of the compound decoction, from four drachms to two ounces.

Cream of Tartar is a purgative and refrigerant. It is used internally in dropsy, especially of the abdomen, in doses of from one scruple to one drachm. As a refrigerant drink it is dissolved in hot water, and sweetened with sugar, and is used in febrile diseases, care being taken not to allow it to rest too much upon the bowels. Dose, as a purgative, from two to four drachms; as a hydrogogue, from four to six drachms, mixed with honey or syrup.

Caution.—Its use should be followed by tonics, especially gentian and angostura.

Epsom Salts is a purgative and diuretic. This medicine generally

operates quickly, and therefore is extremely useful in acute diseases. It is found to be beneficial in dyspepsia when combined with infusion of gentian and a little ginger. It forms an excellent enema with olive oil. Dose, from a half to two ounces, dissolved in warm tea or water. Infusion of roses partially covers its taste and assists its action. Note, that with regard to Epsom salts, the larger, in reason, is the amount of water in which they are taken, the smaller the dose of salts required: thus, half-an-ounce properly dissolved may be made a strong dose. The action and efficacy of Epsom salts may be greatly increased by adding $\frac{1}{4}$ grain of tartar emetic to a dose of salts. Never give more than one dose of the tartar emetic.

Expectorants.

Expectorants are medicines given to promote the secretion from the windpipe, etc. They consist of antimony, ipecacuanha, squills, ammoniacum, and tolu.

Ammoniacum is an expectorant, antispasmodic, diuretic, and deobstruent. It is used externally as a discutient, and is given internally, with great benefit in asthma, hysteria, and chronic catarrh. Dose, from ten to twenty grains.

Tolu is an excellent expectorant, when there are no inflammatory symptoms. It is given internally in asthma and chronic catarrh. Dose, of the balsam, from five to thirty grains, combined with mucilage and suspended in water; of the tincture, from a half to one drachm; of the syrup, from a half to four drachms.

Refrigerants.

These are medicines given for the purpose of suppressing an unnatural heat of the body. They are California

oranges, lemons, tamarinds, nitre, and cream of tartar.

Oranges are formed into a refrigerant beverage, which is extremely grateful in febrile diseases. The rind is an agreeable mild tonic, carminative, and stomachic. Dose, of the tincture, from one to four drachms; of the infusion, from one to two ounces.

Lemons are used to form a refrigerant beverage which is given to quench thirst in febrile and inflammatory diseases. Lemon juice given with carbonate of potash (half-an-ounce of the juice to twenty grains of the salt), and taken while effervescing, allays vomiting; a tablespoonful, taken occasionally, allays hysterical palpitations of the heart. It is useful in scurvy caused by eating too much salt food, but requires to be taken with sugar. The rind forms a nice mild tonic and stomachic in certain forms of dyspepsia. Dose of the infusion (made the same as from orange peel), from one to two ounces.

Antacids.

These are given to correct acidity in the system. They are soda, ammonia, chalk, and magnesia.

Soda, Carbonate of, and Sesquicarbonate of Soda, are antacids and deobstruents. They are used internally in acidity of the stomach and dyspepsia. Dose of both preparations, from 10 grains to half-a-drachm.

Antalkalies.

These are given to neutralize an alkaline state of the system. They are citric acid, lemon juice, and tartaric acid.

Citric Acid is used to check profuse sweating, and as a substitute for lemon juice when it cannot be procured. Dose, from ten to thirty grains.

Drunkenness.—Remedies for.

Whoever makes the attempt to abandon spirit-drinking, will find, from time to time, a rankling in the stomach, with a sensation of sinking, coldness, and inexpressible anxiety. The following tonic will help restore the vigor of the stomach. Take of gentian root, $\frac{1}{2}$ ounce; valerian root, 1 drachm; best rhubarb root, 2 drachms; bitter orange peel, 3 drachms; cardamon seeds, $\frac{1}{2}$ an ounce, and cinnamon bark 1 drachm. Having bruised all the above together in a mortar (the druggist will do it, if requested), pour upon it $1\frac{1}{2}$ pints of boiling water, and cover up close; let it stand till cold; strain, bottle, and cork securely; keep in a dark place. Two tablespoonfuls may be taken every hour before meals, and half that quantity whenever the patient feels that distressing sickness and prostration, so generally present for some time after alcoholic stimulants have been abandoned.

Another.—Sulphate of iron, 5 grains, magnesia, 10 grains; peppermint water 11 drachms; spirits of nutmeg, 1 drachm; twice a day.

Drunkards—To Reform.

Tartar emetic eight grains; rose-water four ounces; mix. Put a tablespoonful into the whole quantity the man drinks through the day, and let him take it as usual; be sure not to exceed this quantity. Another cure is to compel the patient to drink nothing but strong spirits for a week; he will be thoroughly disgusted.

Drunkenness—Apparent Death From.

Raise the head, loosen the clothes, maintain warmth of surface, and give a mustard emetic as soon as the person can swallow, or if possible use stomach-pump.

Dysentery.

Dysentery is an affection of the mucous membrane of the lower portion of the large intestine. Its characteristic symptoms are, liquid stools composed principally of mucus mixed with blood, and a constant desire to go to stool, which is always accompanied by severe straining and pain. Dysentery is frequently accompanied by shivering, and as a rule it arises from a congested state of the liver, which is invariably the result of some indiscretion, either of eating or drinking. In the East it is a disease of much more consequence than it is in this country, because of the fact that it is generally due to the drinking of water contaminated by some decomposing matter which contains the germs of the disease. The proper treatment of dysentery is, first of all, to clear the bowel of the offending matter, either by a dose of castor oil and laudanum or rhubarb in combination with carbonate of soda and grey powder. In the East, however, where this disease is more of a specific character, the great remedy is ipecacuanha, which may be given in considerable doses, and as a rule, this medicine has a marvellously good effect. A most useful adjunct to these remedies, in dysentery, is found in an enema containing an antiseptic such as carbolic acid, combined with a sedative such as laudanum, mixed with a solution of starch and injected into the lower bowel. For an adult, thirty drops of laudanum, four grains of carbolic acid, mixed with two tablespoonfuls of starch about the consistency of cream, will be found of great service where the desire to go to stool is of frequent occurrence, and where pain and straining are prominent symptoms. Dysentery may be diagnosed from ordinary diarrhoea, by the fact that the stools in the former instance are generally slimy and mixed with blood, and

small in quantity, whereas in the latter instance the stools are copious and of a brownish color, and have a very fetid odor.

Dysentery—Other Cures for.

Tincture of rhubarb, tincture of capsicum, tincture of camphor, essence of ginger and laudanum, equal parts; mix, shake well, and take from ten to twenty drops every thirty minutes until relief is obtained. This is a dose for an adult. Half the amount for a child under twelve years of age.

Another.—Take some butter from the churn, immediately after being churned, just as it is, without being salted or washed; clarify it over the fire like honey. Skim off all the milky particles when melted over a clear fire. Let the patient (if an adult), take two tablespoonfuls of the clarified remainder, twice or thrice within the day.

Another.—In diseases of this kind, Indians use the roots and leaves of the blackberry bush—a decoction of which, in hot water, well boiled down, is taken in doses of a gill before each meal, and before retiring to bed. It is an almost infallible cure.

Another.—Beat one egg in a teacup; add one tablespoonful of loaf sugar and half a teaspoonful of ground spice; fill the cup with sweet milk. Give the patient one tablespoonful once in ten minutes until relieved.

Another.—Take one tablespoonful of common salt, and mix it with two tablespoonfuls of vinegar and pour upon it half a pint of water, either hot or cold (only let it be taken cool). A wine-glass full of this mixture in the above proportions, taken every half-hour, will be found quite efficacious in curing dysentery. If the stomach be nauseated, a wine-glass full taken every hour will suffice. For a child, the quantity should be a teaspoonful of salt and one of vinegar in a teacupful of water.

Dyspepsia, or Indigestion.

Dyspepsia, or indigestion, is one of the most common illnesses that affect civilized races. It is generally brought on by indiscretions in eating and drinking, together with inattention to the daily evacuation of the bowels. Many remedies are advocated as curative agents in this disagreeable affection, but the grand point in every case of dyspepsia is to study the diet and attend to the condition of the bowels. The general rules for the treatment of dyspepsia may be summed up in the avoidance of such articles of diet as tend to undergo fermentation when they enter the stomach, such as soups, stews, boiled meats, and food containing oatmeal; while other articles, such as long-infused tea, pastry, shell-fish, potatoes, uncooked fruit, uncooked vegetables, etc., are injurious, because of the difficulty which the stomach, even in a healthy condition, encounters in digesting them. If an individual suffers from dyspepsia, the condition of the teeth should in the first place be attended to, so that proper mastication may be accomplished, this being the first and most important process involved. If the food is thoroughly masticated and mixed with the saliva before passing into the stomach, it is in a condition ready to be acted upon by the gastric juices. Water, or any other liquid, should not be partaken of during a meal, but reserved until the meal is finished. Pepsine, ingluvin, and other digestives of a like nature will frequently assist a weak stomach if taken in conjunction with the meal. There are, however, so many forms of dyspepsia that it would be quite impossible in a work of this kind to go into the treatment of it in its various phases. Medical aid should, therefore be called in, and the strictest attention be given to the instructions received from the physician who is consulted.

The treatment should, in the first place, remove the cause. The bowels should be kept open, the quantity of food taken should be rather small, and nothing exciting to the stomach should be taken into it, and outdoor exercise should be taken, but not too soon after meals.

Ear.

Ear, as is well known, is the organ of hearing by which we are made sensible of the vibrations which take place in the atmosphere. These vibrations are communicated to the brain by means of the auditory nerve, which receives these impressions from the tympanic membrane, which membrane communicates with the auditory apparatus by a series of minute bones. The ear is divided into minute portions, called the external, middle, and internal portions. The external ear is made up of the auricle and the meatus. What is usually called the ear is intended to collect the vibrations from the atmosphere and convey them through the canal to the drum, which, in its turn, as has been before stated, conveys them to the sensory nerves. It is necessary that the internal ear should be in a free communication with the atmosphere, so as to prevent undue pressure being exerted upon the membranous drum. This communication is established through the Eustachian tube, which has its exit in the pharynx, which aperture is situated just behind the tonsils. If this tube becomes congested, which frequently occurs in catarrhal affections of the mucous membrane of the nose and throat, then deafness results from the fact that the air becomes rarefied within the internal ear in consequence of this cavity being to a certain extent isolated from the external atmosphere. This form of deafness is popularly known as throat deafness. The sense of hearing may be, and frequently is, interfered with

by an undue secretion of wax in the external ear, which acts as a barrier to the waves of sound travelling in the atmosphere. This, as a rule, can be remedied by the judicious use of the ear syringe. No case of deafness however, should be treated by amateurs, but should invariably be confided to a competent doctor. (See "Ears—Care of".)

Ear-Ache—Remedies for.

Generally, heat is the best remedy. Apply a warm poultice or warm oil to the ear. Rub the back of the ear with warm laudanum. In case of a foetid discharge, carefully syringe the ear with warm milk and water. In all cases keep the ear thoroughly cleansed. Relief is often given by rubbing the back of the ear with a little hartshorn and water.

Another.—Drop some warm glycerine into the ear by means of a quill, and afterwards introduce a piece of wool. Wool plucked from a blanket is the most suitable; the fibres are elastic, and do not coalesce into a hard pellet as cotton is apt to do.

Ear—To Remove Insects that Have Entered it.

Let the person, under this distressing circumstance, lay his head upon a table, the side that is afflicted upwards; at the same time, let some friend carefully drop into the ear a little sweet oil or oil of almonds. A drop or two will be sufficient, which will instantly destroy the insect and remove the pain, however violent. Then syringe with warm water.

Early Rising.

It is a fact often quoted by doctors, that to lie in bed long after one has awakened is very debilitating. Besides this, the early morning hours, the best part of the day, are lost. The only way to accustom oneself to early rising is to

get up as soon as awake. The first day may seem long and tiresome, but sleep will be sounder and the health better, if the practice is continued.

Eating—Rules for.

Dr. Keith's rules for eating are excellent.

First, eat slowly, because then the food is mixed well with the saliva. If the saliva is well mixed with the food, the appetite is sooner satisfied, so less food is taken.

Secondly, do not take food when worried, anxious, or engaged in any severe mental work. Such workers as Sir Isaac Newton, Napoleon, and Edison have followed this rule.

Thirdly, food will not agree with you if taken when you are overheated, chilled through, or extremely fatigued.

Emergencies.

Emergencies is a term which may be applied to occasions where accidents occur and where one's own judgment requires to be promptly and judiciously called into action during the absence of medical assistance, such as in the case of injury, sudden hæmorrhages, fits, drowning, burns or scalds, poisoning, etc. It would, however, be very injudicious for any one to interfere in such circumstances without having some knowledge of how to act, as frequently more injury may be produced by ignorant meddlesomeness than by leaving the patient alone. In the event of an accident resulting in the fracture of the limbs or skull, the great point to be observed is to keep the injured part as much at rest as possible, so as to prevent the fractured portions of bone injuring the soft tissues in their immediate neighborhood until proper medical assistance is procured. If a person receives a wound where the hæmorrhage is considerable, then the duty of the individuals at hand is to endeavor to arrest the bleeding by the

application of compresses wrung out of cold water and applied firmly over the bleeding parts; and if the situation of the wound is in a limb, a tight band should be applied above the bleeding orifice, so as to constrict the arteries which are pouring blood into the injured limb. In the case of burns or scalds, the greatest relief may be obtained by repeated applications of rags wrung out of carron oil or lime water. If the accident produces so much shock as to induce faintness or collapse, it is advisable to administer brandy and water from time to time, and at the same time keep up the heat of the body by the application of hot-water bottles to the extremities. In convulsions it is always desirable to lay the patient down, and undo anything that constricts the neck or chest, while a piece of wood or cork may be placed between the teeth to prevent the patient biting the tongue; and on no account should any attempt be made to make the patient swallow anything during the convulsion. In poisoning it is always desirable to induce vomiting. This may be attained by the simple method of mixing a tablespoonful of mustard in a cupful of warm water, and giving it to the patient; following this up by copious draughts of warm water, until vomiting ensues. If there is violent vomiting after an injury, this, as a rule, will indicate that the brain has suffered to a considerable extent. In these circumstances it would be advisable to keep the head cool by the application of cold-water cloths or ice, while the extremities should be kept warm by hot-water bottles, and mustard poultices applied to the calves of the legs and to the pit of the stomach. (See Burns, Convulsions, Cuts, etc.)

Endemic.

Endemic is the term which is applied to diseases affecting communities, but

due to the district or surroundings of the individuals attacked. Ague, dengue, cretinism, are all endemic. Typhoid fever, cholera, and rheumatism are also frequently endemic. It is a curious fact that the constitutions of individuals of certain localities have, by some process or other, been rendered impervious to endemic disease.

Enema or Injection.

Enema is probably one of the most useful medical measures that can be employed in the treatment of constipation and its baneful effects. It is easily applied and gives immediate relief, and as it can do no possible injury, being simply a process of washing out the lower bowel by means of suitable fluids, it does not deserve the antipathy which so many have towards it. Frequently persons, and especially children, feel a degree of discomfort, weakness, irritability of temper and depression of spirits, and when this is accompanied by cold feet, a shivering sensation over the body, bad taste in the morning, and frontal headache, we may rest assured that these symptoms are all due to a loaded condition of the lower bowel. If an enema, composed of one pint of warm water to which a tablespoonful of common salt has been added, be injected into the lower bowel and retained for a few minutes, the probability is that a copious stool will be obtained, and in a short time all these disagreeable symptoms will have disappeared. Many prefer soap and water as the component parts of an enema, but soap is much more irritating to the mucous membrane than salt, and therefore salt is to be preferred. Several forms of apparatus have been introduced for the administration of this remedy. When it is to be employed for children, the ball syringe is to be preferred, but the most satisfactory enema apparatus is a fountain syringe. The enema is not unfre-

quently employed in the treatment of worms, dysentery, and diarrhœa. Where the discharges are offensive, in the two latter cases, the enema contains an antiseptic as well as an anodyne, with a view of soothing the irritated mucous membrane, and also to destroy any disease germs that may be present within the intestine.

Epilepsy—or Falling Sickness.

Epilepsy, or falling sickness, is a disease which is generally accompanied by a premonitory sensation on the part of the patient called the "Aura," which sensation is succeeded by a convulsive seizure accompanied by foaming at the mouth, lividity of the countenance, and severe spasmodic contraction of the muscles of the body. As a rule, in consequence of the tongue falling between the teeth, it is liable to be bitten by the spasmodic closure of the jaws, and therefore blood becomes mixed with the salivary secretion which exudes in considerable quantities from the mouth during an attack. It is, therefore, desirable to take precautions against this accident by introducing a piece of wood or India-rubber between the teeth. All articles of clothing which tend to constrict the breathing apparatus should be loosened and the patient laid upon a sofa or bed, or even the floor, until the convulsions cease. These will be succeeded by a heavy stupid look or a deep sleep which may continue for some hours. This sleep should not be disturbed, as, if the patient is forcibly awakened, his mental functions will be found to be temporarily suspended. Epilepsy varies much in severity, some attacks being very mild and others very severe in their nature. Epilepsy occurs very frequently during sleep, and is undoubtedly in such circumstances superinduced by a deranged condition of the digestive organs or the bowels; indeed, any disturbance of the nervous

system, may, in any epileptic subject, give rise to an attack. Epilepsy is frequently a hereditary disease, but it may be, and certainly is, in many instances, induced by blows on the head, worms, dyspepsia, constipation, and over-indulgence. In infancy the nervous system is highly sensitive, and readily acted upon by various irritating causes; thus a deranged digestion, the irritation of dentition, or constipation, frequently give rise to attacks during the infantile period of life. It is rarely that epilepsy results in death, though, after repeated attacks, a fatal issue may result. When death occurs, however, in this disease, it is not as a rule so much due to the attack as to the suffocation which arises from constriction of the muscles of the throat and chest. In the epilepsy of children, and adults also, the disease may be cut short by the administration of chloroform, but to prevent its recurrence is more important than the treatment of the attack when it has developed. However, in infants, a fatal issue may frequently be averted by administering chloroform during the seizure, and it should always be ready on the least indication of an attack threatening, so that the chloroform vapor may be administered, and thus cut the attack short. Among the various remedies which have been advocated in the treatment of epilepsy are: the bromide of potassium, belladonna, antipyrine, phenacetin, and chloral, but the great point is to attend strictly to the digestive and excretory organs, and the patient should be relieved of all unnecessary anxiety and worry.

Eruetation.

Eruetation is always the result of indigestion, in consequence of which large accumulations of gas are generated in the stomach, and are emitted through the mouth. Charcoal in powder is very useful as a palliative agent,

but the great point to attend to where eructation is troublesome is the diet, and improving the digestive functions by suitable remedies, such as pepsin, ingluvin, and tonic medicines.

Eruptions—on the Face.

Dissolve an ounce of borax in a quart of water, and apply this with a fine sponge every evening before going to bed. This will smooth the skin. Many person's faces are disfigured by red eruptions. A very excellent remedy is to take the flour of sulphur and rub it on the face dry, after washing it in the morning. Rub it well with the fingers, and then wipe it off with a dry towel. There are many who are not a little ashamed of their faces who can be cured if they follow these directions.

Erysipelas.

Erysipelas is an inflammatory affection of the skin, and sometimes also of the subcutaneous tissue, arising from a specific germ which locates itself in these tissues, and develops its progeny there. It is always accompanied by considerable pain and hardness of the part affected, together with a highly febrile condition of the system at large. It may, and frequently does, develop without any external injury having preceded it, in which case its usual seat is in the face, and when it affects this part of the organism there is always more or less tendency for it to spread to the covering membranes of the brain when it may prove fatal. It not unfrequently, however, takes its origin in an injured surface, and when this is the case may occur in any part of the body. The most approved treatment of erysipelas is to cover the parts with a solution of ichthyol and glycerine, and administer ten drops of the tincture of the muriate of iron every two hours, while the bowels should be carefully attended to, and the diet be of a light and nutritious character.

Eucalyptus, or the Blue Gum Tree.

Eucalyptus, or the Blue Gum Tree of Australia, has obtained a great reputation on account of its antiseptic powers. The tree itself is a most powerful destructive agent of the miasma, which gives rise to ague, while the essence obtained from the leaf is largely used as an inhalation in many infectious diseases, such as influenza, diphtheria, catarrh, etc. It is also frequently employed in chronic diseases of the chest, among which may be mentioned chronic bronchitis, emphysema, and consumption.

Exercise—The Value of.

The man who has no time for exercise is like the man who has no time to oil his machinery.

Gladstone, the venerable statesman, whose efficiency in old age was remarkable, said: "All time and money spent in training the body pays a larger interest than any other investment."

Carlyle, the historical writer, achieved fame while suffering miserable health. He says: "Health is a thing to be attended to continually. There is no achievement in the world that is equal to health." And finally, Thomson sums the whole matter up when he says:

"Health is the vital principle of bliss,
And exercise, of health."

The business or professional man by exercising will overcome clumsiness. He will gain self-control and self-reliance. He will develop the kind of strength a chain has—no weak parts. He will be able to dispense with all stimulants because he will find that a few leg and arm motions in the time of hardest mental stress, will draw the blood to the extremities, and will bring a feeling of exhilaration that cannot be equalled by unnatural means.

And gradually, he will find his nerves so strengthened that he will enjoy sound, refreshing sleep at night.

Exercise—Hints on.

The most beneficial exercise is that taken in the open air. For those who live sedentary lives, or whose work is mental, the best exercise is that which centers the attention on itself. Such exercises are golf, tennis, foot-ball, base-ball, running, boxing, wrestling, tumbling, fast-walking, and many games, and vigorous out-door exercises. But the most satisfactory exercises are, perhaps, those that accomplish something besides the strengthening of the body. Gladstone's favorite exercise was wood-chopping. A famous millionaire built up his health by turning turfman and daily cleaning and rubbing down many horses. Garden cultivation affords excellent exercise. A doctor sometimes advises his lady patients to make their own beds. There are usually plenty of jobs around the house and yard that will afford you real exercise, and will save you calling in outside help. Your exercise should be the equivalent of a brisk four-mile walk, or a ten-mile horseback ride.

To get the good effects of exercise it should be religiously continued, day after day. But do not overdo. Never tire out a single muscle. Don't practice those exercises you excel in so much as those you don't excel in. And in this connection remember to exercise both sides of the body equally. Just as the speed of a fleet is reckoned by its slowest boat, so is the strength of one's body measured by its weakest part.

A bath should always follow vigorous exercise. The bath may be lukewarm, gradually turning on the cold. The cold water is very beneficial if not used too long. Then a good rubbing with a coarse towel and finger massage

will cause a healthful glow and great exhilaration.

Exercises—Kinds of.

Exercises may be classified as heavy or light. The heavy are those that require violent exertion, as foot-ball, boat-racing, boxing, wrestling, tumbling, and many others. They, of course, should not be participated in by the very young or the old or the infirm, and should be used only by the strong and active while in training. A man not in good condition is running awful risk to attempt them.

Slow-walking, slow horseback riding, slow bicycle riding, gardening, hunting, sailing, driving, and many others, represent the light exercises. Of course, any light exercise can be made a heavy exercise by adding difficulty to the task, and by increasing the speed. But many exercises are by nature so light that they can be attempted by nearly every one.

Any intelligent system of exercise is sure to increase the strength if well adapted to the individual. Nowadays there is no reason why every one should not consult some physical instructor or gymnasium director as to the best form of exercise to pursue in one's own case. The weak and sickly should, of course, consult the doctor.

Exercises—The Best Order for.

Dr. W. G. Anderson, Director of Yale University Gymnasium, gives the following order as the best one for exercising.

1. Leg exercise.
2. Neck exercise.
3. Shoulder and upper-back exercise.
4. Arm exercise.
5. Chest or thorax, and breathing.
6. Waist exercise.
7. Abdominal exercise.
8. Heart and lung exercise.
9. Breathing.

Exercises—Remedial.

Remedial exercises are those that tend to develop the weak or undeveloped parts of the body or to build up the strength. By their practice the tendency to disease is counteracted. But very quick returns are not always forthcoming, so patience and persistence are necessary. Every factory hand should take those exercises in the open air that tend to counteract the one-sided or partial development his work may cause. Every one should be interested enough in developing the weak parts of the body to consult the doctor, or some gymnasium director, if possible, to learn exactly what exercises, and their right proportion, are needed. Parents should have their children's backs and lungs tested as often as they would have their teeth examined, so that a proper system of remedial exercises can be drawn up.

Exercise—The Time for.

The time for exercise should be suited to one's convenience. Those who are actively engaged during the day, will find the time before breakfast and the time just before retiring the best for exercise. The best trainers advise exercising in the middle of the forenoon. It is not good to exercise immediately before or after a hearty meal. One should exercise the lungs at all hours of the day, and the memory should be trained to remind one at all times to take a few long, deep breaths. Exercise, since the human system demands regularity, should always be taken at the same time of each succeeding day.

Exercising—Without Apparatus.

No regular apparatus need be purchased by those who wish to exercise at home or in the office. Almost every part of the body can be exercised after a little practice, by opposing one set of

muscles to another. Flex one set of muscles and flex other muscles to oppose them, as when you gradually and forcefully double up the arm while offering resistance with the muscles that straighten the arm. Stand straight and slowly bend the trunk from side to side, while hindering the action of the muscles of one side by the resistance of those on the other side. Do the same while bending the trunk forward and backward. Slowly change from the standing position to the squatting position while opposing one set of leg muscles to the other. Turn the head, with difficulty, from one side to the other. After some practice, many exercises of this kind will be possible. But this kind of exercise is very condensed, so be careful not to strain any muscles at first.

Eye.

• Eye is the organ of vision, and is one of the most beautiful structures of the human body. Not only is it beautiful, but it is perfect in every particular, and manifests in a small compass the great, the unspeakable power of the Creator. It is important to man, and its adaptation to its requirements is beyond the power of speech to describe, and in a work like this it is quite impossible to give anything but a mere outline of its structure. It is naturally divided into two sections, the globe of the eye and the appendages which control its movements. As is well known, it is situated in a bony case which protects it as perfectly as possible from external injury; this is called the socket, in which it revolves and moves in so many directions. The eyeball is protected from injury to a large extent by the eyelids, which automatically, so to speak, close on the approach of anything that is likely to injure the delicate membrane which covers the eyeball. The external covering of the eye, which is reflect-

ed upon the eyelids, is called the conjunctiva or white of the eye. In the center is the pupil, which opens and closes by the action of a muscle called the iris, while that part composing the colored portion, together with the pupil, is termed the cornea. The globe of the eye itself is barely one inch in diameter, and measures longest from before backwards. It is completely enveloped by the sclerotic, which is composed of a very firm membranous structure. This membrane, however, does not continue beyond the margin of the cornea, and at the posterior surface it opens so as to permit the passage of the optic nerve. Within this membrane is the choroid coat, which is of a dark, brownish color, and within that is situated the retina or expansion of the optic nerve, which forms the layer called the sensitive coat, upon which objects are projected, the impressions of which are conveyed to the brain. The globe of the eye is filled with two remarkably transparent fluids contained in chambers, the anterior of which is called the aqueous humor, and the posterior the vitreous humor, between which two chambers is situated the lens. To produce the sense of vision, the rays of light emanating from the objects in front of the eye pass, first of all, through the cornea, then through the aqueous humor, the lens, and the vitreous humor, and in their passage undergo certain refractions which bring them into their proper focus on the retina, where the picture or the impression is conveyed to the brain through the channel of the optic nerve. The object of the dark-colored, or choroid, coat is to absorb all the superfluous rays of light, which otherwise would confuse the vision. The eye is subject to many diseases, such as ophthalmia, or inflammation of the conjunctiva or external layer; this is called Conjunctivitis. Scleritis, on the other

hand, is usually of a rheumatic nature, and is distinguished from conjunctivitis which produces a red coloration of the conjunctiva, by producing a more livid appearance. The cornea may likewise contract inflammation, when it is liable to become opaque and therefore interfere with the transmission of the rays of light. The lens, also, may be affected, and in process of time become completely opaque, when the disease called Cataract is the result. The humors of the eye may be the seat of disease, and also the retina and choroid coat. These diseases, however, are of so great importance to the individual that it seems to be quite beyond the scope of this work to attempt to give any directions as to treatment, as this can only be successfully carried out by one well versed in ophthalmic disease.

Eye-Sight—To Preserve.

Never sit for any length of time in absolute gloom, or exposed to a blaze of light. The reason on which this rule is founded proves the impropriety of going hastily from one extreme to the other, whether of darkness or of light, and shows us that a southern aspect is improper for those whose eyesight is weak and tender.

Avoid reading small print, and straining the eyes by looking at minute objects.

Do not read in the dusk, nor, if the eyes be disordered, by artificial light.

Do not permit the eyes to dwell on glaring objects, more particularly on first waking in the morning; the sun should not, of course, be suffered to shine in the room at that time, and a moderate quantity of light only should be admitted. For the same reasons, the furniture, walls, and other objects of a bedroom should not be altogether of a white or glaring color; indeed, those whose eyes are weak, would find considerable advantage in having green

for the furniture, and as the prevailing color of their bed-chambers. Nature confirms the propriety of this direction, for the light of the day comes on by slow degrees, and green is the universal color she presents to our eyes.

Those individuals who are rather long-sighted should accustom themselves to read with the book somewhat nearer to the eye than what they naturally like; while others, who are rather short-sighted, should become used to reading with the book as far off as possible. By these means, both will improve and strengthen their sight, while a contrary course increases its natural imperfections. It is well to read or sew with the light above or behind, rather than in front of the face, or with a shade to protect the eyes from glare.

Eyes—When They Require Spectacles.

When we are obliged to remove small objects to a considerable distance from the eye in order to see them distinctly.

If we find it necessary to get more light than formerly, as, for instance, to place the lamp between the eye and the object.

If, on looking at, and attentively considering a near object, it fatigues the eye and becomes confused, or if it appears to have a kind of dimness or mist before it.

When small printed letters are seen to run into each other, and hence, by looking steadfastly on them, appear double or treble.

If the eyes are so fatigued by a little exercise, that we are obliged to shut them from time to time, so as to relieve them, or to look at different objects.

When all these circumstances concur, or any of them separately takes place, it will be necessary to seek assistance from glasses, which will ease the eyes, and in some degree check their tend-

ency to become worse; whereas, if they be not assisted in time, the weakness will be considerably increased, and the eyes be impaired by the efforts they are compelled to exert. Always consult a good oculist, or eye-doctor, before you procure your glasses. Unless properly prescribed for and fitted, glasses are useless.

Eye, Black—How to Cure.

Immediately after the eye has been struck with force enough to make it black, apply a cloth wet with water just as hot as you can bear it; keep on applying the water for fifteen or twenty minutes, and the coagulated blood will become thin and pass off into its natural channels, and leave the eye perhaps swollen, but clear of blackness.

Eye, Sty in—To Cure.

Put a teaspoonful of soda in a small bag, pour on it just enough boiling water to moisten it, then put it on the eye pretty warm, keep it on all night and in the morning the sty will most likely be gone; if not, a second application is sure to remove it.

Eye—Dirt in the.

Place your fore-finger upon the check-bone, having the patient before you; then slightly bend the finger, this will draw down the lower lid of the eye, and you will probably be able to remove the dirt; but if this will not enable you to get at it, repeat this operation while you have a knitting-needle or bodkin placed over the upper lid, ask patient to look down, and then turn the lid upwards over the bodkin, this will turn it inside out, and enable you to remove the sand, or eyelash, etc., with the corner of a fine silk handkerchief, or a small loop of horsehair which can be carried in one's purse. As soon as the substance is removed, bathe the eye with cold water, drop in one drop of castor oil, and exclude the light for a day.

If the inflammation is severe, let the patient take a purgative, and use a refrigerant lotion.

Eye—Lime in the.

Syringe it well with warm vinegar and water in the proportion of one ounce of vinegar to eight ounces of water, and afterwards drop in castor oil, take a purgative, and exclude light.

Eye (Sore)—To Cure.

Take a potato, and after quartering it, grate the heart as fine as possible, and place the gratings between pieces of cambric muslin. Place the poultice over the eyes inflamed, and keep it there fifteen minutes. Continue the operation three successive nights, and a perfect cure ensues.

Eye Washes or Collyria.

Alum.—Dissolve half a drachm of alum, eight ounces (half-a-pint) of water. Use as astringent wash. When twice as much alum and only half the quantity of water are used, it acts as a discutient, but not as an eye-water.

Caution.—This and the following washes are for outward application only.

Compound Alum.—Dissolve alum and white vitriol, of each one drachm, in one pint of water, and filter through the paper. Use as astringent wash.

Ordinary.—Add half an ounce of diluted acetic acid to three ounces of decoction of poppy heads. Use as anodyne wash.

Zinc and Lead.—Dissolve white vitriol and acetate of lead, of each seven grains, in four ounces of elder-flower water; add one drachm of laudanum (tincture of opium), and the same quantity of spirit of camphor; then strain. Use as a detergent wash.

Acetate of Zinc.—Dissolve half-a-drachm of white vitriol in five ounces of water. Dissolve two scruples of

acetate of lead in five ounces of water. Mix these solutions, then set aside for a short time, and afterwards filter. Use as an astringent wash; this forms a most valuable collyrium.

Sulphate of Zinc.—Dissolve twenty grains of white vitriol in a pint of water or rose-water. Use for weak eyes.

Zinc and Camphor.—Dissolve a scruple of white vitriol in ten ounces of water; add one drachm of spirit of camphor, and strain. Use as a stimulant.

Compound Zinc.—Dissolve fifteen grains of white vitriol in eight ounces of camphor water (*Mistura camphoræ*), and the same quantity of decoction of poppy heads. Use as anodyne and detergent wash; it is useful for weak eyes.

Fainting.

Fainting is a state of unconsciousness due to an abnormal contraction of the blood vessels supplying the brain. Some people, especially those of a nervous temperament, are more liable to faint than others. Fainting is, as a rule, due to a shock received by the nervous system which may be produced in various ways, such as witnessing an accident or the sight of blood, and sometimes it has even been known to result from smelling a rose. It may also arise from some affection of the mind, such as grief, intense joy, or other emotions, and not unfrequently it results from weakness of the heart's action, loss of blood, or any cause which acts injuriously upon the vital energies. When fainting occurs, the patient will naturally involuntarily assume the recumbent posture, and thus injuries may be inflicted if the head comes in contact with any hard object in falling. The clothing about the throat should be immediately loosened, while cold water may be

dashed on the face, and strong smelling salts applied to the nostrils; and if the person is capable of swallowing, a little sal-volatile, or brandy mixed with water, may be given by the mouth. Nitrite of amyl, which becomes volatile very readily, may be administered on a pocket handkerchief, five drops at a time. The inhalation of this substance causes relaxation of the blood-vessels, and therefore all the faint symptoms disappear. It may be necessary to apply strong friction, or a mustard poultice, over the region of the heart.

Fainting, Hysterics, etc.

Lay patient down or bend head between knees while seated. Loosen the garments, bathe the temples with water, or eau-de-Cologne; open the window, admit plenty of fresh air, dash cold water on the face, apply hot bricks to the feet, and avoid bustle and excessive sympathy.

Fear.

Fear in nervous people is very liable to be seriously injurious, and may give rise to convulsions, faintness, and even complete cessation of the heart's action. Fear, therefore, should never be resorted to to terrorize children into good behavior, and nurses especially should be warned against frightening the little ones placed under their care.

Feather Pillows.

A pillow should be used thick enough to support the head in a direct line with the body—no more. Curled hair is one of the best materials for pillows. Feathers should never be allowed about a bed in any form. For pillows they are especially injurious, as they partly surround the head and keep it over-heated, which weakens the scalp and produces a tendency to falling out of the hair, congestion of the head, and headache. Then again, the effete emanations that are always being thrown

off from the feathers are taken direct into the lungs with the inspired air.

Felon Salve.

A salve made by burning one table-spoonful of copperas, then pulverizing it and mixing with the yolk of an egg, is said to relieve the pain, and cure the felon in twenty-four hours; then heal with cream two parts, and soft soap one part. Apply the healing salve daily, after soaking the part in warm water.

Fever—Dover's Powder For.

Dover's powder is a compound of one grain of ipecacuanha, one grain of opium, and eight grains of sulphate of potash, mixed together in a mortar. It is largely used in the treatment of feverish complaints where it is desirable to produce free perspiration. In common catarrh of the head, or ordinary cold, it frequently succeeds in cutting short the disease; and in inflammatory affections of the lungs it is a most popular remedy when combined with calomel. In such cases, five grains of Dover's powder combined with half a grain of calomel, administered every four hours, will frequently have a most beneficial effect.

Fever and Ague—Remedies For.

Take two ounces of gum camphor and enclose it in a flannel bag about four or five inches square. Suspend the bag over the pit of the stomach by the means of a cord around the neck, and a speedy cure will be effected. When the camphor is dissolved the ague is gone.

Another.—German physicians have found a tincture of the leaves of the Eucalyptus globulus, or Australian gum-tree, to be a remedy for intermittent fever. Dr. Lorimer gave it to fifty-three patients, of whom forty-three were completely cured.

Another.—The ordinary sunflower, if planted around a house, will free the atmosphere from the animal and vegetable germs, supposed to contain the miasma productive of fever and ague.

Fever—Bilious Remittent.

This makes its attack in a sudden and marked manner. There are no premonitory symptoms except, perhaps, a little languor and debility, slight headache, and a bad taste in the mouth, sometimes some pain in the joints. Its commencement is with a chill, sometimes slight, sometimes severe and prolonged. The chill may begin in the feet, or shoulders, or back, running thence like streams of cold water. There is seldom more than this one chill, the fever coming on afterward without the cold stage. At certain periods of the day, there is greater intensity of the symptoms, and possibly the chill, though probably not. Between these periods of increased fever, the disease seems to decrease, though there is still some fever. Unlike fever and ague, it does not go entirely off. During the hot stage the pulse is up to one hundred and twenty, or still higher, and there are pains in the head, back, and limbs, of the most distressing kind. The tongue is covered with a yellowish fur, and, in bad cases, is parched, brown, or almost black in the center, and red at the edges. The appetite is gone, and there is generally nausea and vomiting, and pain or tenderness in the upper part of the bowels. At first there is constipation, but afterward the bowels become loose, and the evacuations are dark and offensive. This disease is produced by malaria, and prevails in hot climates, and in our summer and autumn.

Treatment.—In the very beginning, the disease may be arrested by an emetic of lobelia or ipecac, followed by a mild cathartic. But if the disease is fully developed, sponge the body all

over, several times a day, with water, and give cooling drinks, such as cream tartar, two scruples, in a quart of water, lemonade, etc. To allay the fever, give tincture of veratrum viride, in five-drop doses. Cold water and ice may be given the patient, if desired. Cool the head, when it aches, with cold applications, and put a mustard-poultice on the stomach, if tender. During the remissions between the fever, quinine, and other tonics, must be given, as in fever and ague.

Fever—Congestive.

Another form of malarious fever, is the congestive. It may be either remittent, that is, abating considerably; or intermittent, that is, having intervals of entire freedom from fever. It may have intervals of twenty-four or of forty-eight hours. The first attack does not differ from that of a simple intermittent, and may excite but little attention; but the second is always severe, producing great coldness, and a death-like hue of the face and extremities. The advancement of the disease brings dry, husky, parched, and pungently hot skin, followed, after a time, by a cold, clammy sensation. The eyes are dull, watery, and sometimes glassy; the countenance dull, sleepy, distressed; the tongue, at first white, changes to brown or black, and is usually tremulous; the breathing is hurried and difficult. Pressure over the liver, stomach, or bowels, produces pain. The mind is often disturbed, and falls into lethargy and stupor, or is delirious.

Treatment.—This should be nearly the same as in bilious remittent. While convalescing, the diet must be light and nutritious at first, increasing in quantity as the strength returns. Use a mild tonic, if the patient is weak. Exercise out of doors must not be neglected.

Fever—Hay.

This very peculiar disease appears generally as a severe attack of catarrh, with asthmatic symptoms superadded. The lining membrane of the eyes, nose, throat and lungs is all more or less affected. The patient suffers from headache, sometimes severe, sneezing, irritation of the nose and throat, with a dry harassing cough. The asthmatic attacks come on generally towards evening, and last from one to three hours, causing great distress. Hay fever is not a very common complaint, and only attacks those persons who from some peculiarity of constitution are susceptible to the causes producing it. It is supposed to be caused by the inhalation of the pungent aroma of spring grass and hay, but the inhalation of the powder of ipecacuanha will also produce it in certain individuals. Where the rose is largely cultivated, similar attacks sometimes occur; it is then called rose fever or rose catarrh. The best treatment is change of air, to the seaside if possible. During the attacks, antispasmodics, such as sal volatile, ether, or an emetic, if the patient is able to bear it, inhalations of hot steam medicated with creosote, carbolic acid, or turpentine will be found useful. When the attack passes off the general health should be improved by tonics, diet, etc.

Fever—Scarlet.

Scarlet fever and Scarlatina are synonymous terms which go to describe one of the most dangerous diseases that childhood is subject to. It must not, however, be taken for granted that childhood alone is subject to scarlet fever, as it not unfrequently attacks the adult and the aged. In children, however, its virulence seems to be most manifest and its malignity most clearly exemplified. It is a

curious question what the origin of scarlet fever is. For my part I am inclined to think that it is a disease which does not take its origin in the human species, but is the result of the partaking of milk of cows affected by a specific disorder. Of course, it is a disease which is highly infectious; but it would seem, in almost every instance where an epidemic breaks out, that its origin takes place in a dairy, or perhaps it would be more proper to say from the partaking of milk supplied by one or more dairies whose sources of supply are almost, if not altogether, identical. The disease is peculiar in its attack.

Symptoms.—It invariably manifests itself by the development of sore throat accompanied, by vomiting, together with a considerable amount of febrile disturbance. In from twelve to twenty-four hours after these symptoms have shown themselves, a brilliant red rash appears upon the chest and gradually extends to the trunk and limbs; along with this there is high fever, and sometimes the disease may be so virulent as to produce gangrene of the throat accompanied by terrible prostration. The affections of the mucous membrane do not always finish where they begin, but very frequently spread by continuity of tissue into the nose, eyes, and ears, and are in consequence productive of immense disorganization of these highly sensitive portions of the economy. In other cases the disease may have been imbibed by the individual, but his vitality may be so impoverished that he is unable to make even an attempt to throw it off either by the throat, stomach, or skin, or what is very much more likely the dose of the poison which he has imbibed has been so great as to entirely paralyze the whole functions, and thus disable them from even making the attempt to throw off the poison. By the development of the

peculiar symptoms which are characteristic of it such cases are usually called suppressed scarlet fever. This, however, is not the case at all; it is neither more nor less than an overpowering of the system by a virulent poison which exerts its full force, and results invariably in the speedy death of its victim. Scarlet fever, doubtless, finds its entrance to the system through the mouth, not through the lung, as so many suppose. My reason for inferring this is, that the poison invariably manifests its existence in the first place upon the tonsils, which glands, as is well known, secrete a tenacious fluid, and not only entrap the poison of scarlet fever, but that of diphtheria also. Portions of the poison, however, escape this trap, if it may be so designated, and enter the stomach, and there create an amount of disturbance which results in the stomach making violent efforts to get quit of the poison; hence the vomiting. This poison, therefore, has two modes of gaining access to the body, viz.: by the tonsils, and by the stomach, and by one or the other it makes sure, as a rule, of its progress being unimpeded. As soon as the poison has entered the blood, high fever sets in, which may have been scarcely noticeable before the constitutional symptoms became apparent. It was, however, present even at the very onset of the disease, although possibly not quite so marked. When this fever develops thoroughly, the rash, the peculiar scarlet rash characteristic of the disease, develops upon the chest and limbs. As soon as this has thoroughly developed, the disease as a rule may be said to be within control, that is to say if the strength of the patient is well maintained. The fever may be modified, however, very much by the administration of phenacetin, and by the administration of diaphoretics, every two or three hours.

The diet at the same time should consist largely of gruels thinned with milk and administered in a warm condition, until the skin has been encouraged to act to its fullest extent. It is also necessary, however, to keep the bowels freely moved every day, while the condition of the kidneys should be particularly attended to. After the lapse of three or four days the rash will subside, but the severity of the eruption has been the means of paralyzing the skin to such an extent as to disable it from performing its healthy functions and developing to its full perfection its epithelial layer. The cuticle, or epithelium, is thrown off in flakes until the skin has sufficiently recovered from the effects of the poison which has so taxed its efforts to get rid of. Six weeks therefore must necessarily elapse before the patient is exposed to the ordinary surroundings of life, as until his skin has become so mature as to enable it to perform its healthy functions perfectly, contagion may still exist in the individual, and again we must remember that not only does the external skin become disabled by the effects of the scarlet fever poison, but the mucous membranes also participate in the destructive effects upon their epithelial lining; hence the kidneys frequently suffer if the patient is exposed to cold before their mucous membrane has become thoroughly reestablished in health. The mucous membrane also of the Eustachian tube and of the internal ear, as well as of the nose and throat, require a certain time to elapse before they can be said to be free from susceptibility to disease and therefore to the tendency to prejudice the organs of sense, with which they are in immediate communication.

Treatment.—The grand points in the treatment of scarlet fever are

to keep the patient quiet in bed in a well-ventilated room, comfortably clothed, and at the same time attend to the daily evacuation of the bowels; while for the immediate symptoms which exist, such as sore throat, chlorate of potash may be given in a saturated solution with water every half hour or so. The fever may be controlled perfectly by the admission of phenacetin, and if necessary, the action of the skin promoted by the administration at frequent intervals, of a diaphoretic mixture. The diet should be light and simple, and largely composed of farinaceous gruels thinned with milk, whose object is to promote the action of the skin and of the kidneys. At the same time the starchy matter which it contains tends very much to conserve the strength of the patient by providing pabulum for the fever which is raging. It must always be remembered that scarlet fever patients retain their powers of communicating the disease to others for a very considerable period, and they should invariably be put into quarantine for forty-two days before being permitted to mingle with other children. It is a comfort, however, to know that if once a patient has suffered from scarlet fever he will never suffer from it again, and the greatest care should therefore be taken to discriminate carefully between scarlet fever and other rashes which may frequently resemble it as far as the skin affection is concerned. I have frequently seen cases of ordinary nettle rash and erythema diagnosed as scarlet fever, and the parents of the children so suffering have been put to a very great inconvenience, and expense as well, in their endeavors to isolate the patients and prevent the disease being communicated to the other children, when the disease was one which in the ordinary course of nature would have passed off in a few days.

Reporting Cases.—When scarlet fever has manifested itself in any house, the first duty of the parents is to communicate the fact to the sanitary officers, who will take every precaution to prevent its spread from this particular source, but who will at the same time have their attention directed to what they consider the original fountain of the disease, and this may probably be ascertained to be in some neighboring dairy. The powers of the Health Board are sufficient in most places to frequently stamp out an epidemic at its very outset, and thus be the means of saving not only many valuable lives, but an immense amount of anxiety to parents and friends. Every parent and guardian therefore should, in all instances, have no hesitation in reporting the cases that may occur in their own household at once to the sanitary authorities.

Fever—Typhoid or Enteric.

Typhoid is due to the absorption through the alimentary canal of specific disease germs. It is a disease which runs an uncertain and always a long course, and is very liable to relapses. In the majority of instances it is due to bad sanitary arrangements. It cannot, however, be definitely stated that it is the result per se of the inhalation of sewer gas; on the other hand, it is very frequently the result of the contamination by sewage gas of water, which by virtue of this absorption is enabled to provide pabulum for the germs of the disease, and thus enable them to assume an active form. If water containing germs thus nourished is taken into the stomach of persons debilitated by other causes, these individuals are highly susceptible to typhoid fever. Now, as the inhalation of sewer gas has a most depressing effect upon the vitality, it thus plays a secondary part in the production of the disease by rendering the indi-

vidual more susceptible to disease of any kind, and particularly so to typhoid fever. It is yet an open question whether this fever is contagious or not: for my part I do not think it is, and I have searched for evidence on this point for many years. The great dangers of typhoid are the high temperature which accompanies it and the tendency of the bowels to ulcerate, thus giving rise to hæmorrhage, which not unfrequently proves fatal.

Symptoms.—Characteristic symptoms are, in the first place, great prostration of the bodily strength accompanied by a high pulse, furred tongue, and copious diarrhœa which has the appearance of soup. The temperature usually rises at night and falls towards morning, and not unfrequently an eruption of purplish-colored spots may be observed on the surface of the abdomen and sometimes on the chest also. When the disease has advanced to any considerable extent the tongue becomes dry and coated, and sordes appear on the teeth. All the secretions except those of the mucous membrane of the bowel become deficient; the urine especially (do not allow this to occur) is liable to become very scanty, so that the secretion of the kidneys is seriously interfered with; uræmic poisoning takes place, resulting in coma.

Treatment.—The high temperature, without doubt, has altogether to do with this partial paralysis of the organs of secretion, and it is therefore most important in the treatment of this disease to endeavor to keep the temperature down, while it is also necessary with a view of preventing waste of strength that the diarrhœa should be controlled as much as possible. The best antipyretic that can be employed in this instance is phenacetin, which not only possesses the advan-

tage of rapidly reducing the temperature, but of being perfectly safe in every respect; if given in four-grain doses every four hours to an adult it rapidly brings down the temperature and has a soothing effect on the patient, in many instances promoting sleep as well as copious perspiration. Of course it goes without saying that judicious nursing is most important in this terrible disease, while the diet must be carefully attended to and the room kept well ventilated. Not unfrequently the high temperature of typhoid fever has been treated by cold affusion, or even the cold bath. The hydropathic pack has also in many instances proved highly efficacious; and where great prostration of the vital powers has taken place and death appeared to be imminent, the application of ice bags over the heart and abdomen has given immediate relief, and in not a few instances tided the patient over the crisis. These seem to be heroic measures, but they have been found in the author's experience of the greatest service to the patient.

Fever—Yellow.

This disease is most prevalent in hot climates, and southern cities of our country. It comes in the latter part of summer, and lasts till frosty weather.

Symptoms.—The disease begins with a chill, generally not very severe. Following the chill, there is a moderate fever, and some heat of the surface, but this rarely rises to any great height, and only continues to the second or third day, when, in fatal cases, it gives place to coldness of surface, etc. In many cases there is sweating. The pulse is peculiar, not often over a hundred, but feeling like a bubble under the finger, which breaks and vanishes before it can be felt. The tongue is moist and white in the first and second days; but red, smooth, shining and dry as the dis-

ease advances toward the close, having a dry, black streak in the middle. The most striking symptoms are nausea and vomiting, which, in fatal cases, is very persistent, and toward the last a yellowish or greenish matter is thrown up, followed by a discharge of thin black fluid, which is called the black vomit. The bowels are generally costive, with tenderness in the upper bowels or stomach. There are generally severe headaches, and a peculiar expression of face, in which the lips smile, while the rest of the face is fixed and sad, sometimes wild. The patient continues wakeful night and day. There are discharges of blood, often from the nose, the gums, the ears, the stomach, the bowels, and the urinary passages.

Treatment.—First move the bowels with some mild physic, such as sweet tincture of rhubarb, four ounces; bicarbonate of soda, two drachms. Mix. Give a tablespoonful once in three hours until it operates. During the chill, use all the usual means of warming the body by hot bottles, mustard foot-bath, warm drinks, drafts, etc. A warm poultice on the stomach is useful; some would advise cupping. During the second, or calm stage, give gentle stimulants, warm drinks, and five drop doses of *veratrum viride*, also quinine. In the third stage, brandy, quinine, and all stimulants freely. To quiet the vomiting, give of this preparation: *erosote*, twenty drops; spirits of *mindererus*, six ounces; and alcohol, enough to dissolve the *erosote*. Dose, half an ounce, every two hours.

Temperance, cleanliness, and all good habits, do much to prevent this disease.

Fits.

Fits is the term applied to any convulsion or spasmodic seizure. (See

Epilepsy, Hysteria, and Convulsions.) These may occur at any period of life.

Flannel.

Flannel is a woolen fabric, without which no one is perfectly clothed. Every man, woman, and child should wear flannel next the skin, especially in a variable climate like ours. It not only gives warmth, but permits

of free ventilation of the skin, and absorption and elimination of the perspiration. In this way the skin is kept in healthy action, and thereby the temperature of the body regulated: thus there is less liability to cold when flannel is worn than there is when the body is only clothed with cotton or linen material.

Food—Time for Digestion of.

The following table shows the time, in hours and minutes, required for the digestion of the more common articles of food.

Kind of Food.	Hours	Min.	Kind of Food.	Hours	Min.
Rice, boiled.....	1	..	Eggs, soft boiled.....	3	..
Eggs, whipped.....	1	30	Beefsteak, broiled.....	3	..
Trout, fresh, fried.....	1	30	Mutton, broiled,.....	3	..
Soup, barley, boiled....	1	30	Mutton, boiled.....	3	..
Apples, sweet, raw.....	1	30	Soup, bean, boiled.....	3	..
Venison steak, broiled..	1	45	Chicken soup, boiled..	3	..
Sago, boiled.....	1	45	Pork, salt, broiled.....	3	15
Tapioca, boiled.....	2	..	Mutton, roasted.....	3	15
Barley, boiled.....	2	..	Bread, corn, baked.....	3	15
Milk, boiled.....	2	..	Carrot, boiled.....	3	15
Liver, beef, broiled.....	2	..	Sausage, broiled.....	3	20
Eggs, fresh, raw.....	2	..	Oysters, stewed.....	3	30
Apples, sour, raw.....	2	..	Butter.....	3	30
Cabbage, raw.....	2	..	Cheese, old.....	3	30
Milk.....	2	15	Bread, fresh, baked.....	3	30
Eggs, roasted... ..	2	15	Turnips, flat, boiled....	3	30
Goose, roasted.....	2	15	Potatoes, Irish, boiled..	3	30
Turkey, roasted.....	2	30	Eggs, hard boiled.....	3	30
Cake, sponge.....	2	30	Green corn, boiled.....	3	45
Hash, warmed.....	2	30	Beans and beets, boiled..	3	45
Beans, pod, boiled.....	2	30	Salmon, salted, boiled...	4	..
Parsnips, boiled.....	2	30	Veal, fresh, fried.....	4	30
Potatoes, Irish, baked...	2	30	Cabbage, boiled.....	4	30
Custard, baked.....	2	50	Suet, beef, boiled.....	5	30
Oysters, raw.....	2	55			

Fomentation.

Fomentation is the most useful, and at the same time simple, method of applying moist heat to any part of the body. It is most efficacious in relieving spasmodic affections of the abdomen, also in inflammatory affections in any part of the body. The proper method of making and apply-

ing a fomentation is to fold about six plies of flannel and place this on a towel laid over a wash bowl; the flannel should then be saturated with boiling water and enclosed in a towel, two people being employed in wringing out the redundant moisture. The fomentation should then be spread out, and, if it is to be applied to

a part where there is considerable pain, it may be, with great advantage, sprinkled over with laudanum. It should then be applied as hot as the patient can bear it, and covered over with several layers of dry flannel so as to retain its heat. Another convenient way of applying fomentations is to take a hot-water india-rubber bag, half fill this with boiling water, and expel all the air from the bag before screwing on the top, this enables the bag to apply itself thoroughly to the part to be acted upon. Two or three plies of flannel should then be wrung out of warm water, laid over the part, and covered by the hot-water bag. A fomentation of this nature will retain its heat much longer than when composed simply of flannel.

Per Cent of Water in Food.

The following shows the per cent. of water in various articles of food:

Lean beef	72
Fat beef	51
Lean mutton.....	72
Fat mutton	53
Fat pork	39
Dried ham	15
Tripe	68
Fish (white)	78
Fish (salmon)	77
White of eggs	78
Yolk of eggs	52
Butter	15
Cheese	36
Milk	86
Poultry	74
Potatoes	74

Foot—Club.

Club foot is a deformity of the foot due to a contracted condition of one or other of the tendons which are in conjunction with the muscles regulating its movements. When attended to in early life it can, as a rule, be easily remedied by a simple operation.

Fractures.

Fracture of bones are not at all uncommon occurrences. When the fractured ends of the bone do not protrude through the flesh and skin, it is termed a simple fracture; when the fracture has resulted in a shattering of the bone, so that it is made up of several broken pieces, it is said to be comminuted; when the fractured ends protrude through the skin, it is termed a compound fracture. The great point to attend to in fractures is, to endeavor to prevent movement in the injured bone, until surgical assistance arrives, so that the broken pieces may be put into position, or set, and kept in that position by means of suitable apparatus. If it is necessary to move the patient at all, the greatest precautions should be taken against altering the position of the limb. This can be done by supporting it on any convenient apparatus, such as a shutter. Should the fracture be compound, and a considerable time likely to elapse before a surgeon can be obtained, it would be a wise precaution to keep it covered by cloths wrung out of a solution of carbolic acid in water, with a view to prevent the entrance of micro-organisms, and thus guard against suppuration. A fracture can always be distinguished from a sprain or other injury by the sensation which is produced when the two fragments are moved and rub against each other. This sensation is called crepitation. As a rule, fractures are accompanied by considerable swelling in the neighborhood of the injury, in consequence of the laceration which is produced in the tissues surrounding them; and in fracture of the rib we may have swelling all over the body, in consequence of fragments of the rib having injured the lung, thus permitting air to penetrate from that organ into the cellular tissue of the body.

Freckles.

Freckles, which are so common, especially on children of fair complexion, are due to an accumulation of pigment in the particular parts affected, and are induced by exposure to the sun. They are not amenable to treatment, but they usually disappear as maturity is attained. The following ointment is said to do much good in this disfigurement: White precipitate ointment, half an ounce; subnitrate of bismuth, three and a half drachms; glycerine to make four ounces. Mix. To be applied every other night.

Another Remedy.—To disperse them, take one ounce of lemon juice, a quarter of a drachm of powdered borax, and half a drachm of sugar; mix, and let them stand a few days in a glass bottle till the liquor is fit for use, then rub it on the hands and face occasionally.

Sun Freckles—To Remove.

Dissolve, in half-an-ounce of lemon juice, one ounce of Venice soap, and a quarter of an ounce each of oil of bitter almonds, and deliquated oil of tartar. Place this mixture in the sun till it acquires the consistency of ointment. When in this state add three drops of the oil of rhodium and keep it for use. Apply it to the face and hands in the manner following: Wash the parts at night with elder-flower water, then anoint with the ointment. In the morning cleanse the skin by washing it copiously in rose-water.

Freckles—Other Cures for.

A very simple and harmless remedy is equal parts of pure glycerine and rose water, applied every night, and allowed to dry. The following lotion is harmless: one drachm of sal ammoniac, dissolved in a pint of water, add a quarter of an ounce of eau de Cologne; apply it night and morning.

Another.—Take tincture of benzoin, 1 pint; tincture of tolu, $\frac{1}{2}$ pint; oil of rosemary $\frac{1}{4}$ ounce. Mix. One teaspoonful of the tincture to be put in half a gill of water, and with a towel dipped in this rub well the face night and morning.

Another.—Take an ounce of lemon juice, a quarter of a drachm of powdered borax, and a drachm of sugar. Mix them and let them stand till fit for use. Then rub it on the freckles occasionally. Or else take half a drachm of muriate of ammonia, two drachms of lavender water. Apply this with a sponge two or three times a day.

Another.—Wash the skin frequently with a liniment composed of equal parts of sweet oil, lime-water, and ammonia. Distilled elder-flower water is also an excellent application for removing freckles. The skin should be bathed with it for five or ten minutes, and washed afterward with clear water night and morning. The honey wash, which is simply honey dissolved in lukewarm water, and used when cold, is another good lotion for freckles.

Balsam of Honey.—Take fine pale honey 4 ounces; glycerine, 1 ounce. Mix by a gentle heat; when cold add alcohol 1 ounce; essence of ambergris 6 drops; citric acid 3 drachms. This is intended to remove discolorations and freckles, as well as to improve the general appearance of the skin.

Another.—Finally, lemon juice alone is probably as good as anything else. And now, after all, if it were our case, we would let cosmetics alone,—unless abundant exercise, fresh air, soap and water, and plain living might be considered cosmetics.

Food.

Food, which is essential to the living body, ought to be partaken of at

regular intervals, and always with deliberation. A meal should never be hurried over, but thoroughly masticated and mixed with the saliva before it passes into the stomach. It is a mistake to partake of too much fluid during the process of mastication; in fact these should always be left to be imbibed after the solid portion of the meal has been eaten. The more simple the diet is, the greater is the prospect of health to the individual, and it is a well-known fact that we eat far more, as a rule, than the body requires for nourishment. Over-indulgence in eating is quite as pernicious as over-indulgence in alcohol, although its effects at the moment are not so apparent. Temperance in all things is the proper rule to follow, and my own observation teaches me that those who are the strongest advocates of total abstinence, as applied to alcoholic drinks, are the very individuals who eat most inordinately, and in this way injure themselves much more than if they were temperate in both eating and drinking. Both animal food and vegetables should be eaten fresh if possible, as many dangers attend the preservation of edibles, and numerous instances are on record of poisoning which have been distinctly traced to the consumption of tinned meats and vegetables.

Frost-Bite and Frozen Limbs.

No heating or stimulating liquors must be given. Rub the parts affected with ice, cold, or snow-water, and lay the patient on a cold bed.

Frost Bite.—Take the person frost-bitten into a cold room in which there is no fire, and rub the parts frozen with snow or cold water. After a while friction with flannels and the hand is to be used, and warmth very gradually applied. If a limb is frozen, the cold applications should be continued longer, and warmth be more gradually

applied than when the whole body is frozen. Care should be taken to handle the parts carefully, so as not to break off any part, as can be so easily done in its frozen state. Frozen feet are said to be permanently relieved by two or three applications of a boiled lye of wood ashes, made so strong as to be quite slippery between the fingers. This lye should settle, be drained off, and have a large handful of salt to each quart of lye mixed with it. It should be quite warm, and the limbs be submerged for one or two hours.

Fruits.

Fruits should enter into the dietary of every one as far as possible, and if eaten before breakfast are very beneficial where there is a tendency to constipation. Besides this, they are useful in purifying the blood.

Fumigation.

Fumigation should be thoroughly carried out during the progress of contagious diseases, and for some time after convalescence has been established. The most powerful antiseptics to employ in these circumstances are carbolic acid, sulphur, and formaldehyde gas. (See articles on Disinfecting.)

Galling in Invalids—To Prevent.

The white of an egg beaten to a strong froth; then drop in gradually, while you are beating, two teaspoonfuls of spirits of wine; put it into a bottle, and apply occasionally with a feather.

Gall Stones.

Gallstones are composed of inspissated bile, and contain a considerable quantity of one of the crystalline ingredients of this fluid, called cholesterine. They vary much in size, and according to their dimensions give rise to symptoms more or less severe. Sometimes they accumulate in very large

numbers within the gall bladder, and at times produce considerable swelling of this organ, so much so that it not unfrequently is necessary to perform a surgical operation for their removal. When they become impacted within the gall duct, they give rise to the most excruciating pain, and, in consequence of the bile not getting free exit, jaundice is liable to result. When gall stones are present in the gall duct, the pain may be very much soothed by the frequent application of hot fomentations over which laudanum has been freely sprinkled. Opiates internally are also called for, and these may be repeated at intervals of two or three hours. If the pain continues, the hypodermic injection of morphia is perhaps the best means of giving relief. When there is a tendency to gall stones it is most imperative that daily evacuation of the bowels be obtained and the diet strictly regulated, so as to facilitate the action of the liver as much as possible. The best purgative to administer in these circumstances is olive oil, in tablespoonful doses, frequently repeated.

Ganglion.

Ganglion is an anatomical term applied to those minute nerve centers which abound throughout the body. The term is also applied in surgery to those elastic swellings which appear generally on the wrist, and sometimes on the top of the foot also. They are about the size of a hazel nut, and when the cyst walls become thin they can be easily ruptured by pressure, after which the fluid which was contained in them disappears by absorption.

Gangrene.

Gangrene is a term applied to the death of the tissues, and is indicated by the fact that the parts become black in color, void of sensation, and, in short, dead. It is always due to some interference with the circulation, and

may arise from a direct obstruction in the main artery of the limb or by a thickening of the walls of the artery, preventing a proper supply of blood being carried to the part. When gangrene occurs in young people, it is generally the result of a blocking of the artery by a blood clot, or, very rarely, however, it may be due to a nervous contraction of an artery, when it is usually symmetrical. When it occurs in old people it is the result of a diseased condition of the coats of the arteries, which become thickened in consequence. Senile gangrene commences at the toes, and may be set up by some very trifling injury to the parts, hence it is important in the cutting of the toe nails, or paring of corns in elderly people that the greatest care be taken not to injure the surrounding tissues. The disease spreads up the limb, and in some instances may reach the thigh, but before this occurs it is usually fatal. Sometimes what is termed the line of demarcation may form, that is to say, the disease process ceases at a certain point, in consequence of the blood current not being interfered with higher up. The only thing that can be done in this disease is to amputate the limb beyond the disease.

Gargles.

These are remedies used to stimulate chronic sore throats or a relaxed state of the swallow, or uvula.

Gastric Juice.

Gastric juice is an acid secretion of the stomach, and is produced by the gastric glands, which are stimulated when food is taken into the stomach. Its special duty is the solution of albuminous compounds. It has no effect upon gelatine, as has been erroneously stated, and therefore there is no nutrition in this substance. The acid of gastric juice is abstracted from the salt which is taken with food. It

contains also an albuminoid substance called peptone, which is also derived from the food.

Germ of Disease.

A great amount of information has been obtained with regard to these minute organisms during the past few years. It is now pretty well established that every disease which the human frame suffers from is due to the invasion of a specific germ or microbe. Some of these find entrance to the system through the breathing apparatus, but in the majority of instances the channel is the mouth; in short, disease, as a rule, enters the system by being swallowed either in the saliva or in the process of eating or drinking.

Giddiness.

Giddiness—in medical language “vertigo”—culminates in a loss of balancing power with a sensation of reeling, and may terminate in the individual falling to the ground. It is frequently attributed to an abnormal supply of blood to the head, whereas it is most frequently caused by a deficiency of blood in the cranium, or anæmia of the brain. Of course when due to anæmia it is not difficult to comprehend that the brain should lose its functional power, as it is temporarily deprived of its nourishment, and therefore acts imperfectly. As soon, however, as the giddiness results in the patient taking a recumbent posture, the head ceases to be the highest point to which the blood is propelled, and consequently the blood is driven with greater facility to the brain, and thus the giddiness passes away. A weak action of the heart, in consequence of its imperfectly propelling the blood through the cerebral vessels, is a frequent cause of giddiness. Flatulent distention of the stomach, by incommoding the heart’s action, is also a potent cause of this disagreeable sensation. Giddiness frequently results

when people suddenly rise from the horizontal posture, and this is due entirely to the fact that the circulation in the brain is temporarily interfered with by the sudden change of posture.

Goitre.

Goitre is a disease of the thyroid gland, which is induced by drinking certain waters which contain an excess of lime in solution. The most potent and most highly recommended remedy for goitre is iodine, both internally, and applied to the swelling as an external application. Sometimes cysts form within the swollen gland and enlarge it to an enormous extent when it is termed Bronchocele.

Gonorrhea—Mixture for.

Balsam of copaiba, one and one half ounces; nitric ether, one ounce; tincture of henbane, three drachms; liquor of potash, two drachms; cinnamon water sufficient to make the mixture eight ounces. Dose, two tablespoonfuls twice a day in case of gonorrhea.

Gout

Is not so much a disease of the blood as a disease in the blood. It is a hereditary disease also, or perhaps it would be more accurate to state that heredity makes one more liable to it if there is indiscretion as to diet on the part of individuals whose forefathers have been the victims of this disease. Its foundation in every case is in the digestive apparatus. If the digestion is good, and the bowels in a healthy condition, no one need be afraid of gout. The natural outlet of the poison of gout is the kidneys; but when uric acid exists to an undue extent within the blood, the kidneys fail to eliminate; it is then liable to deposit itself in some locality, usually in a joint, when pain, accompanied by active inflammation, results. This is designated the explosion of gout. As this disease is one of such importance, it would be out of the question to

go into its pathology and treatment with sufficient elaboration to enable one to attempt its treatment without the aid of a physician; some general hints, however, may be useful, and among these the most important is, to abstain from all articles of diet which are difficult of digestion—in short, to confine one's self to a diet of the lightest kind, such as milk food, chicken, fish, oysters, etc., while as an application to the painful part a solution of three drachms of menthol in half an ounce of chloroform and one ounce and a half of belladonna liniment, will prove most beneficial. As an internal remedy, probably the most useful is the benzoate of lithia in combination with small doses of tincture of colchicum given after food three times a day. There is no doubt that gout and rheumatism are very closely allied to each other, but gout would appear to be a more specific disease than rheumatism, though possibly both are caused by poisons of a similar nature within the blood.

Other Remedies.—Take hot vinegar and put into it all the table salt which it will dissolve, and bathe the parts affected with a soft piece of flannel. Rub in with the hand, and dry the foot, etc., by the fire. Repeat this operation four times in the 24 hours, 15 minutes each time, for four days; then twice a day for the same period; then once, and follow this rule whenever the symptoms show themselves at any future time. A better cure, as also an infallible preventive, is to live on bread and water alone twice a day, and earn it by hard physical labor.

Gravel

Is the term applied to that condition of the urine when it is highly acid and crystals of uric acid or particles of urate of soda, lime, and ammonia become suspended within this fluid. Gravel is invariably the outcome of dyspepsia

and a highly acid condition of the blood, and is frequently associated with rheumatism and gout. The best remedy for gravel is bi-carbonate of potash or lithia.

Gums.

The gums are composed of dense mucous membrane, which covers the alveoli, or the bony sockets, of the teeth. They are liable to be affected by such diseases as scurvy, lead poisoning, and want of cleanliness. Sometimes the gums bleed very freely, but this, as a rule, is due to the effect of disease or to neglect of the teeth. The gums are also frequently affected in children, aphtha being the most common disease of this class, but not unfrequently this may develop into small ulcers which may prove difficult to heal. The best application for disease of the gums, from whatever cause it may arise, is a lotion containing carbolic acid, chlorate of potash, and tannin in solution with water.

Gums—Wash for (Eau de Botot).

Take anise-seed, 80 parts; cloves, 20 parts; cinnamon, 20 parts; oil of peppermint, 10 parts; cochineal, 5 parts; vanilla, 1 part; rectified spirits, 800 parts; rose water, 200 parts. Digest for about a week and filter; then add of essence of amber, 1 part. A few drops in a glass of water to rinse the mouth with.

Gunshot Wounds

Do not always occur where medical assistance can be speedily obtained; it is therefore advisable to endeavor to disinfect the wound as rapidly as possible, and this may be accomplished by mixing one part of carbolic acid with forty of water and injecting it into the wound, and afterwards covering the aperture with a pad soaked in this solution.

Gymnastics

Are exercises which should always be regularly practiced with a view to developing the muscles of certain parts and the physical energies of these parts. It is wonderful what can be obtained by the judicious employment of gymnastics, both in developing the chest and limbs. Massage is a form of gymnastics which is practiced by a second party. By its means, muscles which have been rendered almost useless by disease may frequently be restored to a fair amount of health, and general nourishment of the body can by this means be promoted to an extraordinary extent. Massage, moreover, produces a healthier action of the nervous system, and in certain diseases where exercise cannot be taken in consequence of the weakness and pain which it produces, massage is a most efficient agent in removing these conditions. Swimming is another very popular exercise.

Hæmorrhage

Is an escape of blood from any vessel, and is caused either by direct injury or from the effects of disease. If the bleeding orifices are within reach, then the proper method to adopt with a view to check it is, to apply pressure until the arrival of the surgeon, who will be able to pick up the blood vessels and tie them. If the hæmorrhage is internal, then it may be arrested by the administration of astringent remedies, such as gallic acid, dilute sulphuric acid, acetate of lead, or those remedies which act directly upon the blood-vessels, as ergotine and hamamelis. The administration of ice is also usefully employed in such emergencies. If, however, as frequently happens, the hæmorrhage is the result of a sluggish action of the heart, which interferes with the complete circulation in the veins, then cardiac tonics such as digitalis and strophanthus will be found of

very great service. Bleeding from the nose is perhaps one of the most common of what we might designate internal hæmorrhages; in such circumstances holding up the arms will be beneficial, and the application of cold to the spine is also a popular and useful means of arresting the bleeding. It may, however, be necessary to plug the nares, which can be done by pieces of cotton attached to thread and soaked in an astringent solution, which are pushed up the nostrils.

Hæmorrhage — Uterine, To Prevent.

Take sugar of lead, 10 grs.; ergot, 10 grs.; opium, 3 grs.; ipecac, 1 gr.; all pulverized and well mixed. Dose, 10 to 12 grs., given in a little honey or syrup. In very bad cases after childbirth, it might be repeated in 30 minute or the dose increased to 15 or 18 grs.; but in cases of rather profuse hæmorrhage, repeat it once at the end of 3 hours, or as the urgency of the case may require.

Hair

In many ways resembles a plant, as it grows from a follicle within the skin, and continues to grow as long as the follicle is in a healthy condition. Its mode of growth is similar to that of the hyacinth. It is composed of a horny tissue resembling in every particular of its composition that of the cuticle, or scarf skin. Baldness is always due to atrophy of the follicle which produces the hair. These follicles are supplied with a pair of minute glands, which secrete the greasy matter supplying the hair. After many acute diseases the nutrition of the hair becomes so interfered with that it is liable to fall off. Debility also so interferes with the maturity of the hair that it is liable to split or become forked. The color of the hair is due to a pigment contained within the minute tube which

permeates its centre. The natural color of the hair therefore is white, and it is due to the deficiency of this pigment that the hair becomes blanched as years progress. Severe mental emotion may so affect the coloring matter of the hair as to make it turn white in a very short space of time. Hair, as is well known, is liable to grow on places where it is very unsightly, such as on the faces of women. A popular and, I believe, a very efficient means of removing superfluous hair is in the application of the brine which accumulates in herring barrels. This, although it produces a temporary rash on being applied, has often the effect of completely destroying the hair follicles.

If the ladies will trust to our science on the subject of hair, in the first place, we can assure them, most confidently, that, so far is it from being true that oils and pomatums increase the lustre of the hair, their effect is to diminish that polish which it naturally possesses; while whatever gloss they may give to hair which is naturally dull, is false, and, like all other falsities, disgusting. Absolute cleanliness, by means of water alone, to commence, followed by brushing in the direction of the hair itself in a dry state, is the true method of giving to the hair all the polish of which it is susceptible; and it is the effect of oils of all kinds to disturb or injure this; to say nothing of the disgust and necessary dirtiness of greasy hair. It is the effect of oils also to prevent it from curling; and this object is most effectually obtained, if without artificial means, by curling it when wet and suffering it to dry in that state. And as it happens that almost all hair has a tendency to curl in one direction rather than in another, it is useful to study that tendency, so as to conform to it in the artificial flexure given. As to artificial ap-

plications, the whole of the so-called curling-fluids are mere impositions; while one, which is really effectual, and at the same time inoffensive, is a weak solution of isinglass, by which a very firm and permanent form can be given to the hair. The hair should never be twisted, knotted, or pulled contrary to its natural direction, if you would avoid baldness and headache.

Should the scalp be obstinately dry and harsh, it may be safely washed with a cold weak solution of green tea, or with spirits of Castile soap containing a few grains of tannin. In cases of this kind the following may be applied: alcohol eight parts, water eight parts, spirits of hartshorn one part. Cologne water may also be used; but perhaps the best plan under these circumstances, and especially if there be an accumulation of dandruff, is to have the head thoroughly shampooed, repeating the operation at intervals until the scalp is perfectly clean, and is stimulated into vigorous, healthful action. Only good can be derived from a due attention to cleansing the hair. Of course, an immoderate use of water is not beneficial. Once a week is perhaps desirable, but this will depend upon the individual.

Hair—Art of Brushing.

As a general rule, the head cannot be too much brushed, any more than the horse's coat can be too much groomed. The groom knows full well that by plenty of combing and brushing he can not only produce a fine coat, but add very considerably to the healthy condition of the animal. And so it is with man, the more the head be brushed, the more healthy will be the skin, the more healthy its function, namely the production and maintenance of the hair, and, by a reflected power, the more healthy the individual. I find that hair dressers are divided on the subject of brushing, one party recommending

soft brushes and small brushing; the other, hard brushes and abundant brushing. As usual, in all these differences, both are right as respects a particular theory; but the brushers have the best of the argument. One has set the question for ever at rest, by the announcement of the following paradox: "You cannot brush the head too much, nor the hair too little."

He is right: you cannot brush the head too much, but as, by clumsy brushing with hard brushes, you might overstretch or tear the hair, and so destroy its beauty, be gentle in your surface brushing; for here you cannot, in combination with the deep brushing, brush too little. The fact is, there are two purposes to be attained by brushing: first, to give health to the skin of the head, and strength and vigor to the hair, for which end you cannot brush too much, or use brushes too penetrating or too hard, so long as the skin is not injured; secondly, to smooth the hair, or perhaps go the length of freeing it from dust, for which object your brushes may be as you please, and your hand as light as agreeable. So that, in truth, each according to the purpose he has in view, may be perfectly right; but, nevertheless, at perfect variance with his brother.

Hair—Care of.

A few simple rules for treating the hair and scalp which will show excellent results in a healthier scalp and finer and more luxuriant hair.

Brush the scalp vigorously every night before retiring. The hair should be brushed the opposite way from which it has been lying in the daytime. This allows the air to get to the scalp.

A good shampoo with warm water and some reliable shampoo-mixture or soap should be taken at least once a week. Rub the scalp dry with the fingers.

Pluck out all the dead hairs and never fear that by so doing you are making yourself bald. The falling of the hair will never be lessened by letting the scalp alone.

Heavy or tight-fitting hats should not be worn.

High living and poor digestion show their effect on the hair very quickly. To be in good condition the hair requires good blood and plenty of it.

Hair of Children.

It is a great mistake to plait the hair of children under eleven or twelve years of age. The process of plaiting more or less strains the hairs in their roots by pulling them tight; tends to deprive them of their requisite supply of nutriment, and checks their growth. The hair of girls should be cut rather short, and allowed to curl freely. When they are about eleven or twelve, the hair should be twisted into a coil, not too tight, nor tied at the end with thin thread, but with a piece of ribbon.

Hair—Cleaning the.

From the too frequent use of oils on the hair, many ladies destroy the tone and color of their tresses. The Hindoos have a way of remedying this. They take a hand basin filled with cold water, and have ready a small quantity of pea-flour. The hair is in the first place submitted to the operation of being washed in cold water, a handful of the pea-flour is then applied to the head and rubbed into the hair for ten minutes at least, the servant adding fresh water at short intervals, until it becomes a perfect lather. The whole head is then washed quite clean with copious supplies of the water, combed, and afterwards rubbed dry by means of coarse towels. The hard and soft brush is then resorted to, when the hair will be found to be wholly free from all encumbering oils and other impurities, and assume a glossy soft-

ness, equal to the most delicate silk. This process tends to preserve the tone and natural color of the hair, which is so frequently destroyed by the too constant use of caustic cosmetics.

Hair—Curling Fluids for.

Curling fluids are prepared in a variety of ways; the best, however, we are acquainted with is a mixture of olive oil and beeswax. Take a piece of white beeswax, about the size of the kernel of the almond nut, melt it in about an ounce of olive oil, and then add a few drops of bergamot.

Another.—Into a pint of pure olive oil melt slowly a piece of beeswax about the size of a walnut; after which add a quarter of an ounce of oil of rosemary and a quarter of an ounce of oil of origanum.

Another.—Take carbonate of potash (dry), 1 drachm; cochineal, powdered, $\frac{1}{2}$ drachm; water of ammonia, spirit of rose, of each 1 fluid ounce; glycerine, $\frac{1}{4}$ ounce; alcohol, $1\frac{1}{2}$ ounce; distilled water, 18 ounces. Digest with agitation for a week, and then decant or filter. The hair is moistened with it and then loosely adjusted. The effect occurs as it dries.

Another.—Take borax, two ounces; gum arabic, one drachm; and hot water (not boiling), one quart; stir, and as soon as the ingredients are dissolved add three tablespoonfuls of strong spirits of camphor. On retiring to rest wet the hair with the above liquid, and roll it in twists of paper as usual.

Another.—At any time you may make your hair curl the more easily by rubbing it with the beaten yolk of an egg, washed off afterwards with clear water, and then putting on a little pomatum before you put up your curls. It is well always to go through this process when you change to curls, after having worn your hair plain.

Another.—Mucilage of clean picked Irish moss, made by boiling a quarter of an ounce of the moss in one quart of water until sufficiently thick, rectified spirit in the proportion of a teaspoonful to each bottle, to prevent its being mildewed. The quantity of spirit varies according to the time it requires to be kept.

Another.—Gum tragacanth, one drachm and a half; water, half a pint; proof spirit (made by mixing equal parts of rectified spirit and water), three ounces; otto of roses, ten drops; soak for twenty-four hours and strain.

Another.—This mixture is best made a little at a time. Pour a tablespoonful of boiling water on a dozen quince seeds, and repeat when fresh is required.

Hair—Dressings for.

A cheap and very good dressing is made by dissolving four ounces of perfectly pure, dense glycerine in twelve ounces of rose water. Glycerine evaporates only at high temperatures; and therefore under its influence the hair is retained in a moist condition for a long time.

Another.—Olive oil, 2 pints; otto of roses, 1 drachm; oil of rosemary, 1 drachm. Mix. It may be colored red by steeping a little alkanet root in the oil (with heat) before scenting it. It strengthens and beautifies the hair.

Another.—Bay rum, 2 pints; alcohol, 1 pint; castor oil, 1 ounce; carb. ammonia, $\frac{1}{2}$ ounce; tincture of cantharides, 1 ounce. Mix them well. This compound will promote the growth of the hair and prevent it from falling out.

Another.—Almond oil, $\frac{1}{4}$ of a pound; white wax, $\frac{1}{2}$ an ounce; clarified lard, 3 ounces; liquid ammonia, a $\frac{1}{4}$ fluid ounce; otto of lavender, and cloves, of each 1 drachm. Place the oil, wax,

and lard in a jar, which set in boiling water; when the wax is melted, allow the grease to cool till nearly ready to set, then stir in the ammonia and the perfume, and put into small jars for use. Apply the pomade at night only.

Pomade.—Dissolve thoroughly over a slow fire, 2 ounces of white wax and $\frac{1}{2}$ ounce palm oil, with a flask of the best olive oil. Stir it till nearly cold; then add 1 ounce of castor oil, and add bergamot, or any other perfume you please.

Hair—Golden.

Golden hair fluids have recently been the subject of continued investigation by an English chemist, who, after a careful analysis, asserts that they are composed of dilute nitric and muriatic acid, with traces, in some instances, of sulphuric acid. Though the proprietors of these fluids announce that the preparations are harmless, yet instances have been reported of ladies being injured by drops of the hair dye falling on their shoulders. The agent to effect the change in the color of the hair is the nitric acid, aided by the chlorine evolved by the decomposition of the muriatic acid.

Hair—Gray.

It has been recently asserted that an undue proportion of lime in the system is the cause of premature gray hair, and we are advised to avoid hard water, either for drinking pure or when converted into tea, coffee, or soup, because hard water is strongly impregnated with lime. Hard water may be softened by boiling it: let it become cold, and then use it as a beverage. It is also stated that a liquid that will color the human hair black, and not stain the skin, may be made by taking one part of bay rum, three parts of olive oil, and one part of good

brandy, by measure. The hair must be washed with the mixture every morning, and in a short time the use of it will make the hair a beautiful black, without injuring it in the least. The articles must be of the best quality, mixed in a bottle, and always shaken well before being applied.

Hair—To Prevent Turning Gray.

A good remedy for the hair turning gray and falling off is the following: Distill two pounds of honey, a handful of rosemary, and twelve handfuls of the tendrils of grape vine, infused in a gallon of new milk; about two quarts of water will be obtained from this, which apply to the hair frequently.

Hair—Loss of.

One of the most unpleasant consequences of early neglect is the constant falling off of hair. We do not allude to the loss of the hair dependent on age; that is a natural consequence of our infirmity, and cannot be regarded in the light of a disorder; but instances in which the hair has become thin, even to disfigurement, in early life, are far from being uncommon, and, if neglected, must terminate in confirmed baldness. This excessive loosening of the hair, however, is far from being so irreparable as is generally imagined, and if proper treatment be adopted, the hair will grow fresh, and assume all its original vigor and strength.

The head must be bathed daily with cold water, into which a little eau de cologne has been poured, and the scalp should then be brushed until the skin becomes red, and a warm glow is produced. Cold water is one of the finest cosmetics known, and has this advantage, that while in almost every instance it improves the hair, in no case can it do injury.

Hair—To Restore.

Onions rubbed frequently on the part requiring it. The stimulating powers of this vegetable are of service in restoring the tone of the skin, and assisting the capillary vessels in sending forth new hair; but it is not infallible. Should it succeed, however, the growth of these new hairs may be assisted by the oil of myrtle berries, the repute of which, perhaps, is greater than its real efficacy.

Hair—Superfluous.

Any remedy is doubtful; many of those commonly used are dangerous. The safest plan is as follows:—The hair should be perseveringly plucked up by the roots, and the skin, having been washed twice a day with warm soft water, without soap, should be treated with the following wash, commonly called milk of roses. Beat four ounces of sweet almonds in a mortar, and add half an ounce of white sugar during the process; reduce the whole to a paste by pounding; then add, in small quantities at a time, eight ounces of rose water. The emulsion thus formed, should be strained through a fine cloth, and the residue again pounded, while the strained fluid should be bottled in a large stopped vial. To the pasty mass in the mortar add half an ounce of sugar, and eight ounces of rose water, and strain again. This process must be repeated three times. To the thirty-two ounces of fluid, add twenty grains of the bichloride of mercury, dissolved in two ounces of alcohol, and shake the mixture for five minutes. The fluid should be applied with a towel, immediately after washing, and the skin gently rubbed with a dry cloth till perfectly dry. Superfluous hair can be removed permanently by the use of the electric needle.

Hair Washes.

Take glycerine, 2 oz.; tincture of myrrh, 1 oz.; cologne, 1 oz.; tincture

of cantharides, $\frac{1}{2}$ oz.; distilled water, 24 ounces. Mix.

Another.—Red wine, 1 pound; salt, 1 drachm; sulphate of iron, 2 drachms; boil for a few minutes, and add common verdigris, 1 drachm; leave it on the fire 2 minutes; withdraw it, and add two drachms of powdered nutgall. Rub the hair with the liquid; in a few minutes dry it with a warm cloth, and afterwards wash with water.

Another.—Take elder water, $\frac{1}{2}$ pint; sherry wine, $\frac{1}{2}$ a-pint; tincture of arnica, $\frac{1}{2}$ an ounce; alcoholic ammonia, 1 drachm—if this last named ingredient is old, and has lost its strength, then two drachms instead of one may be employed. The whole of these are to be mixed in a lotion bottle, and applied to the head every night with a sponge. Wash the head with warm water twice a week. Soft brushes only must be used during the growth of the young hair.

Hair—Excellent Wash for.

Take one ounce of borax, half an ounce of camphor; powder these ingredients fine, and dissolve them in one quart of boiling water; when cool, the solution will be ready for use; damp the hair frequently. This wash effectually cleanses, beautifies, and strengthens the hair, preserves the color, and prevents early baldness. The camphor will form into lumps after being dissolved, but the water will be sufficiently impregnated.

Bay Rum

Is a wash for the head, which is very cooling and pleasant to use, promoting the growth of the hair. It is made by distilling rum from the leaves of the bayberry tree, sometimes called the wax myrtle.

Hands.

Dirty and coarse hands are no less the marks of slothfulness and low

breeding, than clean and delicate hands are those of cleanliness and gentility. To promote the softness and whiteness of the skin, mild emollient soaps, or those abounding in oil, should alone be used, by which means chaps and chilblains will generally be avoided. The coarse, strong kinds of soap, or those abounding in alkali, should for a like reason be rejected, as they tend to render the skin rough, dry, and brittle. Immersion of the hands in alkaline lyes, or strongly acidulated water, has a like effect. When the hands are very dirty, a little good soft soap may be used with warm water, which will rapidly remove oily and greasy matter. Fruit and ink stains may be taken out by immersing the hands in water slightly aciduated with oxalic acid, or a few drops of oil of vitriol, or to which a little pearlash or chloride of lime has been added, observing afterwards to well rinse them in clean water, and not to touch them with soap for some hours, as any alkaline matter will bring back the stains, after their apparent removal by all the above substances, except the last.

Hands and Feet—Blistering of.

The best remedy against the blistering of the hands by rowing or fishing, or of the feet by walking, is to light a tallow candle; let the tallow drop into water (to purify it from salt), then mix the tallow with a little brandy, or any other strong spirit, and rub it well into the hands or feet.

Hands—To Beautify.

Rub together in a mortar four parts by weight of yolk of egg with five parts of glycerine. No better ointment for the hands can be procured. The compound may be preserved for years.

Another.—Take three drachms of camphor gum, three drachms white beeswax, three drachms spermaceti, two ounces of olive oil—put them to-

gether in a cup upon the stove where they will melt slowly and form a white ointment in a few minutes. If the hands be affected, anoint them on going to bed, and put on a pair of gloves.

Another.—Two ounces of Venice soap, dissolve it in two ounces of lemon juice. Add one ounce of the oil of bitter almonds, and a like quantity of oil of tartar. Mix the whole, and stir it well until it has acquired the consistency of soap; and use it as such for the hands.

The paste of sweet almonds, which contains an oil fit for keeping the skin soft and elastic, and removing indurations, may be beneficially applied to the hands and arms.

Hands—Chapped.

Glycerine and rose water, of each $\frac{1}{2}$ oz.; mix, and rub it on the backs of the hands night and morning. They will require very few applications before they are well.

Glycerine Lotion.—This useful and pleasant application for chapped hands is prepared by simmering one drachm of quince seed in half a pint of boiling water for ten minutes, straining the mucilage, and mixing one part with one part of inodorous glycerine and six parts of orange flower or rose water. A little borax may be added if desirable.

Another.—Melt mutton tallow, and add a little powdered camphor and glycerine, with a few drops of oil of almonds to scent. Pour in molds and cool.

Another.—Put together equal weights of fresh, unsalted butter, mutton tallow, beeswax, and stoned raisins; simmer until the raisins are done to a crisp, but not burned. Strain and pour into cups to cool. Rub the hands thoroughly with it, and though

they will smart at first, they will soon feel comfortable and heal quickly.

Another.—The easiest and simplest remedy is found in every storeroom. Take common starch, and grind with a knife until it is reduced to the smoothest powder. Take a clean tin box and fill with starch thus prepared, so as to have it continually at hand for use. Then, every time that the hands are taken from the suds, or dish-water, rinse them thoroughly in clear water, wipe them, and while they are yet damp, rub a pinch of the starch thoroughly over them, covering the whole surface. The effect is magical. The rough, smarting skin is cooled, soothed and healed, bringing and insuring the greatest degree of comfort and freedom from this by no means insignificant trial.

Hands and Feet—Cold, to Cure.

Cold feet and hands can be cured only by exercise. The veins are not large enough to keep a warm supply of blood present in the extremities. Hence the veins must be enlarged, and this is possible only by the exercise recommended to strengthen the grip, and exercises for the feet. Massage is very beneficial and cold baths will stimulate the circulation in the extremities. No tight shoes or tight gloves should be worn. Wear heavy woolen garments on the cold members and be sure to keep the arms and legs warm.

Hands—Redness and Burning of.

Redness and burning of the hands are caused by defective circulation. The best remedy is to protect them as much as possible from the cold when out of doors, by using a muff or by wearing two pairs of gloves, which are much warmer than one pair lined. To prevent the burning sensation hold the hands for a few minutes in very warm water after coming in, as that

generally produces a feeling of coolness afterwards, whereas cold water causes a glow after it has been used.

Hands.—To Soften.

After cleansing the hands with soap, rub them well with oatmeal while wet.

Hands—To Remove Stains from.

Dampen the hands first in water, then rub them with tartaric acid, or salt of lemons, as you would with soap; rinse them and rub them dry. Tartaric acid, or salt of lemons will quickly remove stains from white muslin or linens. Put less than half a teaspoonful of salt or acid into a tablespoonful of water; wet the stain with it, and lay it in the sun for an hour; wet it once or twice with cold water during the time; if this does not quite remove it, repeat the acid water, and lay it in the sun.

Hands—To Whiten.

Cut into small pieces a $\frac{1}{4}$ of a pound of Castile soap, and place it in a jar near the fire, pour over it $\frac{1}{2}$ a pint of alcohol; when the soap is dissolved and mixed with the spirit, add 1 ounce of glycerine, the same of oil of almonds, with a few drops of essence of violets, or otto of roses, then pour into molds to cool for use.

Hanging.

Loosen the cord, or whatever it may be by which the person has been suspended. Open the temporal artery or jugular vein, or bleed from the arm; employ electricity, if at hand, and proceed as for drowning.

Headache

Is an affection which a great many people suffer from, and its causes are very various. Headache may be due to indigestion, nervous prostration, neuralgia, congestion of the blood-vessels, and constipation. It is frequently symptomatic of disease, and

is a constant symptom in febrile affections. Of course, the treatment depends entirely upon the cause, but it will be found that nervous and neuralgic headaches can be very quickly removed by the administration of phenacetine in five-grain doses, combined with two grains of caffeine. Bromo-seltzer is one of the best things if taken in time. Antipyrine has been frequently prescribed for the relief of headache, but this drug should be taken with the greatest caution, as its effect upon the heart is oftentimes very deleterious. When headache is of frequent occurrence and persistent, particular attention should be paid to the digestive apparatus and the condition of the bowels. Hardly any one suffers from headache whose bowels are in good order.

Headache—Remedies for.

A doctor in Paris has published a new remedy for headaches. He uses a mixture of ice and salt, in proportion of one to one-half, as a cold mixture, and this he applies by means of a little purse of silk gauze, with a rim of gutta percha, to limited spots on the head, when rheumatic headaches are felt. It gives instantaneous relief. The skin is subjected to the process from half a minute to one and a half minutes, and is rendered hard and white by the application.

Another.—Put a handful of salt into a quart of water, add one ounce of spirits of hartshorn and half an ounce of camphorated spirits of wine. Put them quickly into a bottle, and cork tightly to prevent the escape of the spirit. Soak a piece of rag with the mixture, and apply it to the head; wet the rag afresh as soon as it gets heated.

Another.—It is stated that two teaspoons of finely powdered charcoal drank in half a tumbler of water, will, in less than 15 minutes, give relief to the sick headache, when caused, as in

most cases it is, by superabundance of acid on the stomach. This remedy has been tried time and again, and its efficacy in every instance has been signally satisfactory.

Headache, Nervous—To Cure by Exercise.

Many persons have found that pursuing a system of exercises to develop the neck has entirely cured them of nervous headaches. Every one suffering from headaches will be greatly fortified against them if they develop the muscles and enlarge the veins of the neck, thereby facilitating the blood circulation to the head. The brain demands an immense amount of blood, out of all proportion to its weight. To properly develop the neck muscles it is best to begin with the chest and upper back muscles. Then develop the neck itself.

Perform the two bending exercises, first given to cure indigestion and obesity, while keeping the head in the same vertical position, like the compass in a rocking boat.

Lean back against the wall so that your weight will rest on your heels and the back of your head. Let your body sink towards the wall, then force it away by use of your neck muscles.

Turn the head to the left and right alternately.

Try to look at the top of your neck-tie.

Practice an erect carriage of the body.

Perform all neck exercises slowly and follow them with a good massage of the neck muscles.

Head-Scald—In Infants.

This complaint begins in brownish spots on the head, and in a few days forms a scab, and discharges a thick, gluey matter, that sticks upon the hair. The sores gradually increase, until the whole head is covered with a scab, dis-

charging this matter, which is very offensive. The hair is to be cut off as close as possible, and the head washed every night and morning with lime water. This is easily prepared by slaking a piece of quicklime, of the size of a hen's egg, in a quart of water, and when settled, it is to be put into a bottle and corked for use.

Head—Scurf on.

A simple and effectual remedy. Into a pint of water drop a lump of fresh quicklime, the size of a walnut; let it stand all night, then pour the water off clear from the sediment or deposit, add a quarter of a pint of the best vinegar, and wash the head with the mixture. Perfectly harmless; only wet the roots of the hair.

Health—Rules for Preserving.

Pure atmospheric air is composed of nitrogen, oxygen, and a very small proportion of carbonic acid gas. Air once breathed has lost the chief part of its oxygen, and acquired a proportionate increase of carbonic acid gas; therefore, health requires that we breathe the same air only once.

The solid parts of our bodies are continually wasting away, and require to be repaired by fresh substances; therefore, food, which is to repair the loss, should be taken with due reference to exercise and the waste of body.

The fluid part of our bodies also wastes constantly; there is but one fluid in animals, which is water; therefore, water only is necessary; and no artifice can produce a better drink.

The fluid of our bodies is to the solid in proportion as nine to one; therefore, a like proportion should prevail in the total amount of food taken.

Light exercises an important influence upon the growth and vigor of animals and plants; therefore, our dwellings should freely admit light.

Decomposing vegetable and animal matter yield various noxious gases,

which enter the lungs and corrupt the blood; therefore, all impurities should be kept away from our abodes, and every precaution used to secure pure air.

Warmth is necessary to all the bodily functions; therefore, an equal bodily temperature should be maintained by exercise, clothing, or fire.

Exercise warms, invigorates, purifies the body; clothing preserves the warmth the body generates; fire imparts warmth externally; therefore, to obtain and preserve warmth, exercise and clothing are preferable to fire.

Fire consumes the oxygen of the air and produces noxious gases; therefore the air is less pure in the presence of lamps, gas, or coal-fire than otherwise, and the loss should be repaired by increased ventilation.

The skin is a highly organized membrane, full of minute pores, cells, blood-vessels, and nerves; it imbibes moisture, or throws it off, according to the state of the atmosphere and the temperature of the body. It also breathes, as do the lungs, though less actively. All the internal organs sympathize with the skin; therefore, it should be cleansed frequently.

Late hours and anxious pursuits exhaust the nervous system, and produce disease and premature death; therefore, the hours of study and labor should be short.

Mental and bodily exercise are equally essential to health and happiness; therefore, recreation and study should succeed each other.

Man will live most healthily upon simple solids and fluids, of which a sufficient but temperate quantity should be taken; therefore, strong drinks, tobacco, snuff and opium, and all mere indulgences, should be avoided.

Sudden alternations of heat and cold are dangerous, especially to the young and aged; therefore, the clothing should

be sufficient, and adapted to changes of temperature.

Moderation in eating and drinking, in labor and study; recreation taken with regularity; rest, cleanliness, even temper, an equable temperature, are the great essentials of health—which far surpasses wealth in value.

Heartburn

Is a burning acrid sensation felt both in the stomach and at the top of the gullet. It is usually accompanied by an undue flow of water into the mouth, called water-brash, and is a symptom of acid dyspepsia. It is a frequent concomitant of pregnancy, and in such circumstances often causes very considerable discomfort. It can be temporarily relieved by the administration of carbonate of potash, soda, and lime, these acting as neutralizing agents to the acid. It is not, however, expedient to have constant recourse to these remedies, but in every instance the diet should be arranged so as to avoid those articles which are found to be prejudicial in the circumstances; and with a view to strengthening the stomach eight grains of bismuth combined with ten grains of ingluvin may be given three times a day just before meals.

Heartburn—Agreeable Effervescent Drink for.

Orange juice (of one orange), water, and lump sugar to flavor, and in proportion to acidity of orange, bicarbonate of soda about half a teaspoonful. Mix orange juice, water and sugar together in a tumbler, then put in the soda, stir, and the effervescence ensues.

Heartburn—Carminative Lozenges for.

Bicarbonate of soda 2 drachms, refined sugar 14 ounces, oil of peppermint 4 drops; made into lozenges with mucilage of tragacanth. Used in flatulency, heartburn, etc.

Heart—Palpitation of the.

Consists in a perturbed and tumultuous action of that organ of which the patient is painfully sensitive. It may give the sensation of a fluttering movement about the region of the heart, or of a thumping sensation against the walls of the chest. Palpitation may be either functional or organic in its origin, or it may depend, as it frequently does, upon an excited condition of the individual, either fear or joy producing this unpleasant sensation. It is a very common symptom in certain nervous diseases, and is especially prevalent in nervous women, and when anæmia is present, especially after slight exertion. The distended condition of the stomach arising from dyspepsia likewise frequently gives rise to this unpleasant sensation. In these circumstances, palpitation is more due to mechanical interference with the proper action of the heart, and is therefore not to be viewed with such seriousness as people are liable to estimate it at. Hysterical women are especially liable to palpitation, and in consequence may become very apprehensive as to their bodily health, which invariably has a most pernicious effect upon their already weakened organism. Palpitation, however, may, and very frequently does, accompany actual disease of the organ itself, when, of course, it becomes a matter of very serious import both to the individual and to the medical attendant. When it arises from nervous disturbance it becomes necessary to ascertain from whence this arises, and by judicious treatment endeavor to accomplish its removal. When due to hysteria, as it frequently is, temporary relief may be given by the administration of a teaspoonful of the ammoniated tincture of valerian, in water, every two or three hours. When the stomach is at fault the same medicine will often prove beneficial;

but, of course, the great point is to endeavor to regulate the diet and improve the functions of digestion. If anæmia is the cause, then iron should be given after each meal, but always accompanied by a slight laxative, as it will be found in these circumstances that the lower bowel is sluggish. When this distressing symptom, however, depends upon disease of the heart it will be necessary to administer digitalis, preferably in the form of infusion, in tablespoonful doses, three or four times a day, or tincture of strophanthus in five-drop doses, every four or five hours.

Tea, and especially green tea, is very liable to disturb the heart's action when used by susceptible persons. And there is no doubt that an immense number of persons in every community suffer from minor forms of heart derangement, due to the use of tea and coffee.

Tobacco, either smoked or chewed, invariably affects the heart's action, and produces irregularity and palpitation.

Hiccup or Hiccough.

Hiccough is an intermitting spasmodic affection of the diaphragm, and is frequently due to indigestion. When, however, it occurs in the last stages of acute disease it is of great gravity, and frequently indicates a fatal termination. When hiccough occurs in ordinary health it generally arises from some irritating matter which has been taken into the stomach, and will usually pass off of its own accord. It may be relieved by the sudden application of cold, also by two or three mouthfuls of cold water, by eating a small piece of ice, taking a pinch of snuff, or anything that excites counteraction.

Home Sickness.

Home sickness may be thought by some to be purely an imaginary dis-

ease, but in reality it may assume dimensions which become in some instances quite alarming. Depression of spirits and a falling away of the general health frequently occur, so that disease actually is the outcome of a longing for home and its surroundings. As a rule, this sickness passes away with the lapse of a little time, but in some cases nothing will give relief to the symptoms but removing the patient home.

Hoarseness—or Aphonia.

Aphonia literally means loss of voice, and is always due to an inflammatory affection of the larynx or paralysis of the vocal cords. This may be caused either by cold or specific disease. The general treatment of such cases consists in the alleviation of the inflammatory action by poultices, hot fomentations, the inhalation of steam, etc.; also by the employment of expectorants, the most valuable of which are ipecac and antimony combined with soothing agents such as paregoric or chlorodyne. When paralysis is present, electricity is of considerable service when employed. (See "Sore Throat.")

Another Remedy.—Take one drachm freshly-scraped horse-radish root, to be infused with four ounces of water in a close vessel for three hours, and made into a syrup, with double its quantity of vinegar. A teaspoonful has often proved effectual.

Homœopathy.

Homœopathy is a system of treating disease, first promulgated by Samuel Hahnemann of Leipzig in 1796. The "Organon of Medicine" which he published in 1810 contains a full exposition of his system, perfected after many years of careful observation and experiment. It is based upon the observation—as old as Hippocrates—that a drug which on the healthy will cause a certain array of symptoms

will cure a disease presenting a similar array of symptoms. Thus, Hippocrates observed that veratrum, which is capable of causing a series of symptoms resembling cholera, cured that disease. Again, among the well-known poisonous effects of belladonna are sore throat and a red rash all over the skin, and it is claimed that belladonna is a specific for scarlatina, which is accompanied by a similar sore throat and red rash; and quinine, which produces on the healthy febrile symptoms resembling an attack of ague, will, as is well known, cure the ague. From these and numerous analogous observations, Hahnemann inferred that the treatment of likes by likes was the long sought for true rule for medical treatment of disease. Further, it was found that the sensitiveness of the parts of the organism affected by disease was so much increased that the homœopathic medicine which acts on the same parts had to be given in doses much smaller than those generally employed, in order to avoid a primary aggravation of the original disease. Homœopathy has had a powerful influence on the general practice of the medical profession during the present century, and in recent years the method of studying the action of drugs, originally suggested and carried out by Hahnemann, has been adopted to a very large extent. It claims to be a system of medicine that approaches the exactness of science, and its advantages are—universal applicability, shorter duration of diseases, greater chance of cure, pleasantness to take, absolute freedom from danger of being poisoned, cheapness, and compactness. A homœopathic medicine chest can be of the smallest compass.

Hydrophobia.

Hydrophobia takes its origin from the fact that those suffering from it

dread the very sight of water. It is one of the most fearful diseases that an animal can be subjected to. As is well known, it is only conveyed by inoculation through the body of an animal suffering from rabies. If a person has been bitten by a mad dog, although the wound may heal in the ordinary manner, it does not follow that the person has escaped the disease, for after an uncertain interval the symptoms may appear—it may be months or even a year after the injury has been inflicted.

Symptoms.—The first symptoms which show themselves are, an uneasy or painful sensation about the injured part, and if the wound has healed the scar tingles, or some peculiar sensation is experienced in its neighborhood. This pain or uneasiness extends from the sore or scar towards the central parts of the body, and within a day or two of these symptoms appearing the patient commences to feel very ill and uncomfortable, and the specific constitutional symptoms commence. These are, great irritability of temper, with pain and a choking sensation about the neck and throat, and the patient is unable to swallow fluids, and if he attempts to do so, spasms, not only of throat but of the body generally, speedily supervene, and within a few days he dies of sheer exhaustion. It would appear that this disease was due to the poison imbibed by the system acting on the spinal cord and up, producing changes there which culminate in the fearful and distressing symptoms of the disease.

Treatment.—The precaution to be taken when a person is bitten by a mad dog is, of course, in the first instance to endeavor to destroy the poison by the free application of caustics. Perhaps the most useful application to apply to the

wound is pure carbolic acid; if this is not at hand, then lunar caustic may be applied vigorously and freely to the part. Within recent years a very great deal of information on this hitherto almost uniformly fatal disease has been obtained through the researches of M. Pasteur of Paris, and he has been able by a process of attenuating the virus to render the system so far invulnerable as to enable it to overcome the potency of the poison. This is accomplished by injecting underneath the skin of persons bitten by mad animals this weakened virus; by doing so he acts upon the system very much in the same way as vaccination does with reference to smallpox. Pasteur's method of treating persons bitten by mad dogs, who are therefore liable to take the disease, has now become universally recognized as one of the greatest achievements of medical science. His method should always be followed when any one has been bitten by a dog that was known to be suffering from rabies. Almost all large cities have a Pasteur institute where this can be done.

Hysterics.

The fit may be prevented by the administration of thirty drops of ether. When it has taken place, open the windows, loosen the tight parts of the dress, sprinkle cold water on the face, etc. A glass of wine or cold water when the patient can swallow. Avoid excitement and tight lacing.

Indigestion—or Dyspepsia.

Indigestion or dyspepsia is probably the most common complaint that the human frame is liable to; this is largely due to the fact that people will not study their diet and attend to the daily evacuation of the bowels. Indigestion may arise from many causes, the chief of which are the partaking of rich or unwholesome articles of diet

(this of course, can be easily remedied by abstaining from those particular substances which one by experience learns is the cause of the trouble); nervous debility brought on either by mental fatigue and worry, or from the enervating effects of certain diseases; while febrile disturbances also have a direct effect upon the digestion. Dyspepsia also frequently arises from catarrh of the stomach, and this condition is in many instances hereditary, while in others it is the result of exposure to cold. When this exists an undue secretion of mucus takes place, and a deficiency of gastric juice results. When indigestion is purely stomachic in its origin it is indicated by a feeling of discomfort or pain immediately after taking food, with an inclination to vomit. In other forms the dyspepsia manifests itself by a sensation of distention of the stomach, accompanied by frequent eructations. This is generally accompanied by fermentation of the food, the fact being that the temperature of the stomach favors this kind of decomposition, and the result is the generation of acid and gas, which is in consequence accompanied by the eructation of flatus, or wind, as it is popularly called. The acidity which accompanies it may be of such an acid nature as to give rise to what is popularly known as heartburn, and this is also accompanied by pyrosis, or water-brash. This is an eructation of watery fluid having a disagreeable taste. Along with indigestion there is frequently an undue inflation of the intestine as well as of the stomach, and when this is the case it is manifested by a feeling of fulness low down in the abdomen, together with a griping sensation. As a rule this is due to undigested food finding its way into the intestinal canal.

Treatment.—When indigestion is present it is essential that a proper

dietary should be attended to, and it will be found that the following instructions, if carefully carried out, will be of considerable service, viz., the avoidance of soups, stewed meat, and boiled meat, and if such articles as porridge and vegetables produce acid, these should be abstained from also. Another pregnant cause of indigestion is the partaking of tea in too large quantities, and especially of tea which has been long infused; it is therefore, necessary that tea should not be infused for more than three or four minutes at the outside. Bread should not be eaten before it is at least one day old, and brown bread, or that which is made from whole wheaten meal, will be found much more easy of digestion than white bread. Then, it may be necessary to assist the digestion materially by adopting an exceedingly simple diet. It may be necessary to abstain entirely for a little while from meat, and only such articles as chicken, fish, sweetbreads, and milk diet generally will require to be fallen back upon. It is also a well-known fact that meat under-done is much more easily digested than that which is overcooked. It need hardly be mentioned that in cases of dyspepsia it is essential that thorough mastication of the food should take place, but perhaps that which requires as much care as anything is the daily evacuation of the bowels, and where this requires assistance, a small dose of Gregory's mixture will probably answer the purpose better than anything else. If catarrh of the stomach is present, or if dyspepsia from other causes exists, great service will be obtained by washing out the stomach thoroughly before eating, which can be done very easily by sipping a teacupful of very hot water about an hour or three quarters of an hour before meals. Regular and systematic exer-

cise in the open air, and the employment of a cold bath, either by means of the spray or sponge, with a good rub-down in the morning, will also be found very advantageous. Then, it must be remembered that proper clothing is a most useful and beneficial means to adopt in persons who are of a dyspeptic habit; it is essential that the body be kept warmly but not over clothed, and with a view of accomplishing this, flannel should always be worn next the skin. If the feet are cold, and the sleep is disturbed by dreams, with a feeling of fatigue in the morning accompanied by bad taste and frontal headache, we may rest assured that the bowels are in an unsatisfactory condition. These symptoms are frequently ascribed to biliousness, but the liver is not altogether at fault, the condition being due to a very large extent to the fact that the lower bowel is in a torpid condition. When such symptoms are observed, a saline purgative, very thoroughly diluted with water, taken before breakfast, will prove most beneficial. When it is necessary to assist the digestion, pepsin, ingluvin, papain, or zymine will be of considerable service if taken immediately after meals. Frequently, pepsine combined with aromatic powder, bi-carbonate of soda, and magnesia or with helalin, will give great comfort, and relieve the distressing symptoms. The following prescription may be taken with advantage if combined with the regulations as to diet which have just been given: Pepsin and aromatic powder, of each three parts, bi-carbonate of soda, eight parts, and heavy magnesia, four parts; half a teaspoonful of this powder taken in water immediately after food will often prove to be of immense service. If, however, the indigestion proceeds from an atonic condition of the stomach it may be necessary to combine this with twenty

drops of tincture of nux vomica and a tablespoonful of a bitter infusion, such as that of quassia, calumba, or gentian. Nux vomica is an admirable stomachic where the stomach requires tone. It will, however, always be advisable when indigestion is present to consult a competent physician, as it is quite impossible for any patient to treat himself, however well he may be advised in a work of this kind; indeed, medical men themselves are quite unable to treat a disorder of this kind arising in their own persons.

Another Remedy.—Infusion of calumba, six ounces; carbonate of potash, one drachm; compound tincture of gentian, three drachms. Dose, two or three tablespoonfuls daily at noon. (See Constipation, etc.)

Indigestion and Obesity.

The best and only permanent way to cure indigestion and obesity is to strengthen the stomach muscles. Bending exercises are excellent for the stomach muscles if the back be kept straight and the abdomen drawn or held in. Put the hands on hips and bend to the right and left alternately. Hands on hips and bend down forward and back. Do these exercises thirty times, both morning and evening. Do them rather slowly. After a month or so they can be made more difficult by putting the hands to the shoulders and finally, by raising the hands overhead, while performing the exercises.

Another good exercise is to exaggerate the motion of the legs as in going up stairs, until the knees bump the chest. Another exercise is to lie on the back and alternately raise the legs to a perpendicular position. In this exercise those who have poor control of the stomach muscles should hold the abdomen in with the hands.

Another exercise is to lie on the back with the feet under a heavy piece of

furniture and raise the body to a sitting position. This is a difficult exercise and should be performed with caution. It can be made increasingly hard by raising the arms over the head while performing it.

All stomach exercises are more or less irksome, but they yield a wonderfully good interest if persevered in. Heavy people need them especially, and if, beside these exercises, they eat very slowly and temperately, and massage vigorously after exercise, immense benefit will be derived.

Infants' Food.

First Food.—Happy indeed is the child, who, during the first period of its existence is fed upon no other aliment than the milk of its mother or that of a healthy nurse. If other food become necessary before the child has acquired teeth, it ought to be of a liquid form; for instance, biscuits or stale bread boiled in an equal mixture of milk and water, to the consistency of a thick soup; but by no means even this in the first few weeks of its life. Children who are brought up by hand, that is to say, who are not nursed by mother or wet nurse, require an occasional change of diet, and thin gruel affords a wholesome alternation to milk. When cows' milk is used it should be obtained, if possible, from one and the same cow, and be freely diluted with boiled water.

After the first Six Months weak veal or chicken broth may be given, and also, progressively, vegetables that are not very flatulent, and occasionally a little stewed fruit, such as apples, pears, or rhubarb.

When the Infant is Weaned, and has acquired its proper teeth, it is advisable to let it have small portions of meat finely minced, and other vegetables, as well as milk puddings, made of sago, seminola, rice, etc., so that it

may gradually become accustomed to every kind of strong and wholesome food. Care, however, should be taken not upon any account to allow a child pastry, confectionery, cheese, onions, horseradish, mustard, smoked and salted meat, especially pork, and all compound dishes; for the most simple food is the most wholesome. Potatoes should be given only in moderation, and not to be eaten with butter, but rather with other vegetables, either mashed up or in broth.

The Time for giving Food is a matter of importance; very young infants may be fed more frequently, as their consumption of vital power is more rapid. It is, however, advisable to accustom even them to a certain regularity, for children fed indiscriminately through the whole day, are subject to debility and disease. The stomach should be allowed to recover its tone, and to collect the juices necessary for digestion, before it is supplied with a new portion of food.

Order of giving Food.—The following order of giving food to children will be found conducive to their health: After rising in the morning, suppose about seven o'clock, a moderate portion of lukewarm milk, with well baked stale bread; at nine o'clock, bread with some fruit, or if fruit be scarce, a small quantity of fresh butter, or bacon liquor; about twelve o'clock, the dinner, of a sufficient quantity of wholesome food. Between four and five, some bread with fruit, or, in winter, some preserve as a substitute for fruit; at this meal children should be allowed to eat until they are satisfied, without surfeiting themselves, so that they will only need a light supper, about seven o'clock; they ought then to eat but little, and not to be put to sleep for at least an hour after it.

Bread for Infants.—It has often been contended that bread is hurtful to

children; but this applies only to new bread, or such as is not sufficiently baked; for instance, nothing can be more hurtful or oppressive than rolls, muffins, and crumpets. Good wheaten bread, especially that baked by the aerated bread process, is extremely proper during the first years of infancy; but that made of whole wheat meal, or wheat flour from which the bran has not been eliminated is, perhaps, more conducive to health after the age of childhood.

Infants—Crying of.

It is a mistake to consider every noise of an infant as a claim upon our assistance, and to give either food or drink, with a view to satisfy its supposed wants. By such injudicious conduct, children readily acquire the injurious habit of demanding nutriment at improper times, and without necessity.

Crying Natural.—In the first year of infancy, many expressions of the tender organs are to be considered only as efforts of manifestations of power; in many instances, these vociferating sounds imply the effort which children necessarily make to display the strength of their lungs and exercise their organs of respiration. You will observe, for instance, that a child, as soon as it is undressed, or disencumbered from swaddling clothes, moves its arms and legs, and often makes a variety of strong exertions. Nature has wisely ordained that by these very efforts the power and utility of functions so essential to life should be developed, and rendered more perfect with every inspiration.

Hence it follows that those over-anxious parents or nurses, who continually endeavor to prevent infants crying, do them a material injury; for by such imprudent management, their children seldom or never acquire a perfect form of chest, while the foundation

is laid in the pectoral vessels for obstructions and other diseases. Independently of any particular causes, the cries of children, with regard to their general effects, are highly beneficial and necessary.

Crying an Exercise.—In the first period of life such exertions are almost the only exercises of the infant; thus the circulation of the blood and all the other fluids is rendered more uniform, digestion, nutrition, and the growth of the body are thereby promoted; and the different secretions, together with the very important office of the skin, or insensible perspiration, are duly performed. Sometimes, however, the mother or nurse removes the child from its couch, carries it about frequently in the middle of the night, and thus exposes it to repeated colds, which are in their effects infinitely more dangerous than the most violent cries.

Crying Violently.—There are frequently instances in which the loud complaints of infants demand our attention. Thus, if their cries be unusually violent and long-continued, we may conclude that they are troubled with colic pains; if, on such occasions, they move their arms and hands repeatedly towards the face, painful teething may account for the cause; and if other morbid phenomena accompany their cries, or if these expressions be repeated at certain periods of the day, we ought not to slight them, but endeavor to discover the cause.

Infection

Is the act or process by which disease is set up in a person by the implantation of germs from without; or of a part of the organism, by the conveyance of such germs from another part.

Influenza—La Grippe.

Influenza may be described as the most typical example of epidemic dis-

ease. It literally comes upon the people, and does not appear to be conveyed by infection so much as it is produced by a peculiar atmospheric condition, due evidently to the fact of the atmosphere being loaded with the germs of this disease at the time being. Influenza has been (in the popular mind) very much mixed up with ordinary catarrh and cold, for the reason possibly that the premonitory symptoms of influenza very much resemble those of common catarrh; they are, however, two very distinct diseases. Influenza is a feverish attack coming on quite suddenly, and producing invariably a sudden and considerable rise in the temperature of the body. It is always accompanied in the first stage with a catarrhal affection of the mucous membrane of the air passages, hence it is probable that the disease germs, in the first instance, locate themselves upon the mucous membrane of these passages very much in the same way as the poison of measles does, and through these channels it enters the general circulation. Shortly after the onset of the disease there is great prostration, shivering, and pains through the whole body, especially in the loins and head. As a consequence of the fever there are loss of appetite, and in many instances vomiting, with intense heat of the surface and excessive thirst. As a result of the affection of the mucous membrane there is generally cough, and not unfrequently this congestion of the bronchial tubes may extend until it reaches the lung tissue and thus produce pneumonia, which so often is the direct cause of death in this disease. Death, however, may occur from the excessive debilitating effects that the disease has upon the vital powers, especially upon the heart. As is well known, influenza seems to come in waves over a very large extent of the

world's surface and attacks large numbers at once, and frequently simultaneously. This is a striking characteristic of the disease. Another of its characteristics is the tedious convalescence which follows it, and the liability to relapse or to a fresh attack occurring. It is not a little remarkable how some people escape from its ravages. It would appear that only those whose health is at the time in an unsatisfactory condition are affected; especially are those liable to it whose blood is contaminated by fecal absorption from the lower bowel, due to that commonest of all evils, and predisposer of disease, constipation. Of course, exposure to cold or any other influence which will depress the vitality for a time being will also lay the system open to an attack.

Treatment.—In the treatment of this disorder we must always remember that death occurs in every instance from the disease affecting the vital organs with such rapidity that they are unable to withstand the attack. Now this, to my mind, is entirely due to the fact that the febrile disturbance in the system is so great and the high temperature which results has such a prostrating effect upon the heart's action, that congestion of all kinds are very easily set up, in consequence of the driving power of this organ being so terribly reduced. The first point, then, and the most important, to attend to in the treatment of influenza is, to reduce the temperature at once. On no consideration permit it to be retained at anything above 100°, and this can readily be accomplished by the free and, if necessary, frequent administration of phenacetine in small doses. For a child up to six years of age two grains may be given every four hours, up to ten years three grains, from ten to fifteen years four grains, and above that five grains

may be administered at intervals of four hours if necessary. Phenacetine is a most efficacious remedy in diseases which give rise to a high temperature. At the same time that this medicine is being administered, the lower bowel should be kept clear by the daily use of the enema, and the vital powers sustained by judicious nourishment. When an attack of influenza is threatening, the free inhalation of eucalyptus oil or menthol by a steam inhaler may cut short an attack, but the grand point to observe is the condition of the general health, and especially that of the bowels.

Injuries—Arnica Liniment For.

Add to 1 pint of sweet oil 2 tablespoonfuls of tincture of arnica; or the leaves may be heated in the oil over a slow fire. Good for wounds, stiff joints, rheumatism, and all injuries.

Intemperance

May be said to comprise the over-indulgence in alcohol, tobacco, or food. It is a strange coincidence that those who are intemperate in any of these articles live the shortest lives. I mean by this, that those who are intemperate drinkers die young, those who are excessive smokers also shorten their lives, while those who are inordinate eaters invariably die before they have attained the allotted epoch of life's duration.

Intoxication—Remedies for.

Among remedies employed to remove the intoxication produced by the use of alcoholic drinks, the preparations of ammonia and the vegetable acids are the most common and important. About 2 or 3 fluid drachms of aromatic spirits of ammonia (spirits of sal volatile) mixed with a wineglassful of water will generally neutralize or greatly lessen the action of intoxicating liquors. This sometimes produces vomiting, but this is a desirable result, as

nothing so effectually removes the drunken fit as the thorough removal of the liquor from the stomach; hence tickling the throat with the finger or a feather is a common resource. Soda water acts by the free carbonic acid it contains, and serves also as a tonic to the stomach. Vinegar, among the acids, is one of the most effective remedies, a small teaspoonful being a customary dose. In the West Indies, lime juice and lemon juice are used. The use of bitter almonds, as a means of lessening or retarding the effects of fermented liquors, was known to antiquity, and is still common among heavy drinkers at the present day. (See also "Drunkenness.")

Invalids—Apple Water for.

Apple water is a refreshing drink for an invalid. It can be made with either baked or raw apples, the former to be preferred when in haste, that is, if the apples are already baked. They should be sour, and when cooked, should be immersed in enough boiling water to cover them. Let stand until cool, strain, and sweeten to taste. For apple water made from raw apples, three or four juicy sour apples of fine flavor should be pared and sliced. Pour over them two cupfuls of boiling water and let them stand for three hours. Strain, sweeten, and add a small piece of ice. A pleasant flavor is added if the rind of a lemon is mixed with the slices of apple.

Irritation—Emollient Lotion for.

Use decoction of marsh-mallow or linseed.

Irritation—Enema for.

Mix four ounces of olive oil with half an ounce of mucilage, and half a pint of warm water. Use as a demulcent.

Itch—Or Scabies

Is a highly contagious parasitic disease of the skin. It is characterized by an eruption of small pointed

vesicles, which confine themselves largely to the flexures of the joints, especially those of the fingers, toes, elbows, knees and thighs. It is, however, liable to spread over the skin generally. It is always attended with excessive itching, especially when the person gets warmer than usual, such as in bed, or standing near a fire, or in taking stimulating food or exercise. This disease is produced by a minute insect called the *Acarus Scabiei*, which burrows under the cuticle of the skin and deposits its eggs there, where they are hatched, and produce the intense itching which is characteristic of the disease. It occurs very frequently among those of uncleanly habits, and is therefore more often met with among the poor, and especially in those whose constitutions are undermined by bad nourishment and clothing. Fortunately, it is a disease which can be easily cured by the inunction of an ointment containing the flowers of sulphur or storax. The latter is to be preferred, because it does not produce such a disagreeable odor, and is quite as efficacious as sulphur. The proper plan to adopt in the treatment of this disease is to put the patient in a warm bath and sponge him thoroughly down with soft soap and water, and, after drying, to rub the body all over with the ointment. This should be continued for at least two days, when, as a rule, the disease will be found to have disappeared. A useful adjunct to this treatment is the administration of sulphur in teaspoonful doses night and morning.* It is needless to state that the clothing which a person affected with this disease has worn, and the bed-clothes in which he has lain, should be thoroughly scalded, so as to destroy any vestige of the disease which may remain upon these articles. It must be remembered that when sulphur ointment is employed this preparations is

liable of itself to give rise to an eruption which should not be confounded with that of the disease. As storax does not produce this unpleasant effect it has this additional advantage over sulphur.

Itch—Ointment for.

Sweet oil, one pound; suet one pound, alkanet root, two ounces. Melt and macerate until sufficiently colored, and then add powdered nitre, three ounces; powdered alum, three ounces; powdered sulphate of zinc three ounces; powdered vermilion sufficient to color, and oil of origanum sufficient to perfume.

Another.—Carbonate of potash, one ounce; rose water, one ounce; vermilion, one drachm; sulphur, eleven ounces; oil of bergamotte, one drachm; lard, eleven ounces. Mix.

Another.—Take unsalted butter, one pound; Burgundy pitch, two ounces; pulverized red precipitate one and one-fourth ounces; melt the pitch and add the butter, stirring well together; then remove from the fire and when a little cool add the spirits of turpentine, and lastly add the precipitate, stirring the mixture until cold.

Another.—Mix four drachms of sublimed sulphur, two ounces of lard, and half a drachm of diluted sulphuric acid together. Use as an ointment to be rubbed into the body.

Itch—Petroleum for.

Dr. Decaisne, of Belgium, reports having used successfully the oil of petroleum in upward of six hundred cases of itch. In the great majority of cases the disease was completely cured after a single friction; in several, after two, and in a very few instances three or four applications were required. The method failed in two or three cases only, and in these sulphuret of lime was necessary to effect a

cure. It is not necessary, as some military surgeons have thought, to rub in the oil with coarse towels and brushes, but on the contrary, the softest brushes should be used to spread the oil on the skin. Dr. Decaisne, from experiments instituted in the military hospital and garrison at Antwerp, on the disinfection of the clothing, believes that this process is quite unnecessary. Even if some of the germs of the itch insect should adhere to the wearing apparel, these are destroyed by the action of the petroleum with which the person of the patient is saturated.

Itch—Barber's.

This appears on the hairy part of the face—the chin, upper lip, the region of the whiskers, the eyebrows, and nape of the neck. It consists in little conical elevations, which mature at the top, and have the shaft of a hair passing through them. These pimples are of a pale, yellowish color. In a few days they burst, and the matter running out, forms into hard, brownish crusts. These crusts fall off in one or two weeks, leaving purplish, sluggish pimples behind which disappear very slowly. The disease is caused by the parasite *Trichonphyton tonsurans*, sometimes appearing as ringworm of the beard and hair, and is very obstinate, lasting for months, or even years.

Treatment.—The most important part of the treatment is the removal of the cause. The beard must not be pulled with a dull razor; 15 grains of carbolic acid in one ounce of glycerine applied to surface twice a day will cure. All intemperance in eating and drinking must be avoided, as well as exposing the face to heat. A light, cool diet will do much toward a cure, and consult a doctor as soon as possible.

Itch—Baker's.

This disease is of common occurrence on the hands of bakers; hence the vulgar name.

Treatment.—Frequent ablution in warm water, keeping the bowels open with saline purgatives, and the nightly use of sulphur ointment will generally effect a cure. Salt food should be avoided as much as possible, as well as keeping the hands covered with dough and flour; the latter being the cause of the disease.

Jaundice.

Jaundice is a secondary result of disease, either in the gall-bladder, or gall-duct, and is essentially blood-poisoning, arising from an accumulation of the bile within the circulation. It is easily recognized by the color of the whites of the eye and of the skin which it produces, giving a yellow appearance to these tissues, while at the same time the stools become white, in consequence of the absence of bile in them. On the other hand, the urine partakes of an intense porter-like color due to bile being excreted by the kidneys, and often the perspiration even may be tinged. The causes of jaundice are so varied, and the consequences so very serious, that it is essential to call in medical aid on the appearance of the disease.

Another.—If this is not at hand, then in the first instance a blue pill may be administered, followed within a few hours by a brisk purgative of four grains of calomel combined with a purgative taken at intervals of twenty-four or thirty-six hours. If the disease arises from organic mischief within the liver it is generally incurable, and as a rule is an indication that death is not far distant; whereas if it arises from cold, as it frequently does, thus producing a catarrhal and thickened condition of

the gall-duct, it will as a rule speedily pass off. This will also be the case if it has its origin in the blocking of the duct by gall stones, which are in reality only pieces of congealed bile. When gall stones are the cause of jaundice, these may readily be suspected by the severe colic which their passage through the gall-duct gives rise to, and in such circumstances great benefit may be derived by the frequent, even hourly, administration of one or two table-spoonfuls of olive oil. How this acts it is difficult to say, but that its effects are most beneficial is beyond dispute.

Joints

Technically called Articulations. The mobility and exposed situation of the joints render them liable both to accident and to disease. In either case considerable patience on the part of the patient as well as upon the attendant is called for, and absolute rest must be enjoined in any such affections. Although serious disease may locate itself in the bone or covering of a joint, as a rule this may be successfully treated either by the surgeon (if the use of the knife is required) or by the physician (if medical treatment is applicable). Apart from actual organic disease, the joints are liable to inflammatory attacks, more especially that portion of the joint which envelops it, and is called the synovial membrane. This membrane provides a thick glairy secretion, which acts as a lubricating substance, just as oil is employed in lubricating machinery. Inflammation of this membrane, or synovitis, as it is called, though common to all the joints of the body, is most frequently met with in the knee, and, as a rule, arises from injury, such as too much kneeling or a blow upon the knee, but may also result from cold or a rheumatic condition of the part, due to acidity of the blood. Like inflammation of other parts it is accompanied by severe pain

especially on movement; there is also swelling and tenderness to the touch, and when fluid exists it may be detected by the fact that it yields an elastic and fluctuating sensation to the fingers. When the disease is acute great relief may be afforded by the application of leeches, followed by warm fomentations so as to encourage the bleeding, and afterwards complete rest should be enjoined. On the other hand, many surgeons advise the application of cold in the form of ice bags, or the application of an evaporating lotion, which extracts the inflammatory heat from the part. The evaporating lotion however, is mostly applicable in those diseases of joints which are due to direct injury. The various joints of the body are also liable to tubercular disease; especially is this the case with the hip joint. In such circumstances the aid of the surgeon is generally necessary, and the diseased portion requires excision. At the same time it is essential that the general health be attended to and complete rest enforced, while the muriate of calcium should be given regularly after each meal, for there is no doubt that this useful lime salt has a specific effect in tubercular disease wherever it may be located.

Leucorrhea, "Whites."

This is the term applied to a colorless, white or yellowish discharge, secreted from either the mucous membrane of the vagina or uterus, or both. The cause which produces the Whites may have its seat either in the vagina, or in the neck of the womb. If it be thin and watery, or thick and cream like, it is from the Vagina; if ropy, gluey or albuminous, like the white of an egg, it is from the cavity or the neck. The treatment consists in strengthening the parts, by the wearing of perfectly loose clothing, hip baths,

and cold water injections five or six times a day, with active friction on the back, hips and lower part of the abdomen. No sexual intercourse must be allowed while a cure is unaffected.

Lice, or Pediculi.

Lice, or Pediculi, are probably the most loathsome of all parasites. Want of cleanliness is always associated with these loathsome creatures. Mercury applied in the form of ointment is the most effective agent to employ for their destruction. The ova or nits which become attached to the hair may be destroyed by the free application of acetic acid.

Life.

In a work of this kind this subject can only be considered as to its duration. Such a variety of circumstances exercise their influence upon the duration of life that it will be quite impossible even to enumerate them in the space that can be here devoted to the subject. There is no doubt, however, that in children especially the mortality might be very much reduced were dietetic rules and hygienic laws, especially as regard clothing and ventilation, more rigidly enforced; and this pertains not only to the years of childhood, but also to those of youth and maturity. The more naturally an individual is fed, and the more conscientiously he observes the laws of nature, the greater are his chances of longevity; e. g., eating and drinking to excess, and especially partaking of indigestible foods and the indulgence in alcoholic stimulants, though acting slowly, gradually undermine the system, and by inducing faulty action of the various organs invariably result in an untimely death. Then, again, living in an overcrowded and vitiated atmosphere, by lowering the vitality of the indi-

vidual, renders him more liable to disease, and consequently adds to the risk of his being carried off prematurely. Dr. Farr's table, extending over a period of thirty-four years, yields the following statistics:—

	Males.	Females.
All ages.	23	21
Under 5 years.	72	62
From 5 to 10	8.7	8.5
From 10 to 15	5	5
From 15 to 25	8	8
From 25 to 35	10	10
From 35 to 45	13	12
From 45 to 55	18	15
From 55 to 65	32	28
From 65 to 75	67	58
From 75 to 85	147	134
From 85 to 95	305	279
From 95 and upwards	441	430

N. B.—The figures, of course, represent the death rate per thousand.

The average life of the middle classes would appear to be 45 years, that of tradesmen and their families 39 years, and that of laborers, servants, and their families 34 years. Doubtless the variations in these instances are largely due to more careful living and better ventilation in the longer-lived as compared with those whose longevity is shorter. Then, again, it is ascertained that in country districts longevity is greater than in towns, and this is evidently accounted for by the simpler mode of life which obtains in the country than that which is prevalent in towns. Of late years it is well known that longevity has increased considerably, and this, without a doubt, is only accounted for by the fact that sanitary legislation has become more advanced and hygienic precautions more rigidly observed by the population at large.

Lightning.

Lightning produces injury or death by its action upon the nervous system, although it also produces local

injury by its scorching effects. Individuals who are prostrated, but not killed by lightning, invariably suffer from temporary, if not permanent, effects upon the nervous system, such as blindness and insensibility. In such cases it is essential that the animal warmth be maintained, which, in consequence of the shock, is liable to become diminished. If the respiration is feeble and tends to cease, then artificial respiration may be advantageously employed, just as in the case of drowning. A little stimulant, such as sal volatile or brandy, may also be administered, and a mustard poultice applied across the region of the stomach and heart, and also to the spine. Many accidents from lightning occur from want of knowledge on the part of those who are suddenly overtaken by a thunderstorm. In such circumstances the open fields, although the individual is exposed to the drenching rain, are much safer than when shelter is taken under trees or at the side of buildings, as these attract the electric fluid and thus expose those seeking shelter to much greater risk. Umbrellas should not be used for this reason, and contact with metallic objects should also be carefully avoided.

Liniments.

A liniment is a semi-fluid ointment, found or supposed to be useful in painful joints, swellings, burns, etc. It is generally applied by rubbing on with the hand, or a flannel, and sometimes both, the flannel being used first to irritate the skin. There are many who have come to the conclusion that the rubbing is more beneficial than the liniment.

Lips—Chapped.

Take two ounces of white wax, one ounce of spermaceti, four ounces of oil

of sweet almonds, two ounces honey, quarter of an ounce essence of bergamot, or any other scent. Melt the wax and spermaceti; then add the honey and melt all together, and when hot, add the almond oil by degrees, stirring it till cold.

Another.—Take oil of sweet almonds, three ounces; spermaceti, one-half ounce; virgin rice, one-half an ounce. Melt these together over a slow fire, mixing with them a little powder of alkanet root to color it. Keep stirring till cold, then add a few drops of the oil of rhodium.

Another.—Take oil of sweet almonds, spermaceti, white wax, and white sugar candy, equal parts. These form a good, white, lip salve.

Lip-Salve—Rose.

Oil of sweet almonds, three ounces; alkanet, half an ounce. Let them stand together in a warm place, then strain. Melt an ounce and a half of white wax, and half an ounce of spermaceti with the oil; stir it till it begins to thicken, and add twelve drops of otto of roses.

Another.—White wax, one ounce; sweet almond oil, two ounces; alkanet, one drachm; digest in a warm place, stir till sufficiently colored, strain and stir in six drops of otto of roses.

Lip-Salve—Carnation.

Olive oil, one pound; alkanet root, one ounce or less. Macerate with heat until the oil is well colored; then add of white wax six ounces; spermaceti, six ounces; oil of lavender, thirty drops; essence of bergamotte, one drachm.

Lip-Salve—Red.

Olive oil one pound; alkanet root, two ounces or less. Macerate with heat until the oil is well covered; then add of spermaceti, two ounces; white wax, eight ounces, suet (prepared) twelve ounces. When nearly cold,

stir in orange-flower water, one ounce; oil of lavender, one-half a drachm.

Another.—Prepared suet, one pound; prepared lard, one pound; alkanet root, two ounces. Macerate in a gentle heat until sufficiently colored, then cool a little, and stir in of rose water, six ounces; oil of lavender, ten drops; essence of neroli, ten drops; essence of lemon ten drops; essence of bergamotte ten drops.

Lip-Salve—White.

Prepared suet one pound; prepared lard, one pound. Melt and when cooling stir in rose water, four ounces; oil of rhodium, two drops; oil of cloves, five drops—or other scent to taste.

Another.—Olive oil, one pound; spermaceti, one pound; white wax, one pound; prepared lard, one pound. Melt, and while cooling stir in rose water eight ounces, essence of lemon, two drachms, bergamotte, two drachms.

Lip Ointment—Cream.

Obtain a pint of pure cream, let it simmer over the fire till it resembles butter, and forms a thick oily substance, which may be used as ointment for fresh or old wounds, cracked lips or hands.

Liver—Acute Inflammation of.

The office of the liver is to take the superabundant carbon out of the blood. This carbon unites with other elements and forms bile—the peculiarly bitter substance which is poured into the upper bowel and greatly aids digestion. The liver is liable to become inflamed from several causes, such as gravel-stones, external violence, suppressed secretions, hot climates, inflammation of the duodenum, etc. The symptoms of acute inflammation of this organ are, fever with pain in the right side, and a sense of tension, inability to lie on the left side, difficulty of breathing, a dry cough, vomiting and hiccough. The pain is generally acute and lanci-

nating, though sometimes dull and tensive. When sharp it is like the stitch of pleurisy, and it indicates that the peritoneum which covers the liver is inflamed. When dull, it is in the body of the liver itself. The pulse is full, hard and strong, the bowels costive, and the stools clay-colored, owing to not being tinged with bile—this having stopped flowing. The tongue is covered with a yellow, dark brown, or even black coat, and there is a bitter taste in the mouth.

Treatment.—It may be necessary to apply wet cups or wet compresses of vinegar and water over the liver. Purgatives must be used pretty freely, and those which produce watery stools are the best. Senna leaves, two drachms, steeped in a pint of water, to which is added, when cool, one ounce of Epsom salts. Strain and give one-fourth of the preparation for a dose; this is a brisk purge. It will be necessary to blister the surface over the liver generally, though a mustard poultice will answer in mild cases. A poultice of mustard on the spine is also of service in relieving the pain. A foot bath, friction and sour drinks are good. Perspiration induced by a vapor bath, and kept up by giving the tincture of American hellebore, from three to ten drops an hour, is excellent. When the urine is scanty and high colored, give some diuretic, as an infusion of marsh-mallow root or the seeds of the pumpkin steeped to make a tea. The diet should be of the lightest kind, until the patient is somewhat recovered.

Liver—Chronic Inflammation of.

This is a difficult disease to cure. Its symptoms are a sense of fullness and weight in the right side, with some enlargement, and shooting pains in the same region, especially when it is pressed, with pains in one or both shoulders, and under the shoulder-

blades; uncomfortable sensation when lying on the left side; yellowness of the skin, eyes, and urine; bowels irregular, loose or costive; sometimes a dry, hacking cough; shortness of breath tongue whitish, and brown or yellow toward the root; a bitter and bad taste in the morning. The urine deposits a sediment on standing. There is usually a low and despondent state of mind, with irritability and peevishness of temper. The skin is often covered with yellow spots, and with a branny substance. The various symptoms of dyspepsia are present. The nervous system is apt to be disturbed, and there is a disinclination to apply the mind, or a dread of some impending evil.

Treatment.—If there is much tenderness of the liver, begin with mustard poultices, and the compound pills of podophyllin, or the compound pills of leptandrin: podophyllin, fifteen grains; leptandrin, two scruples; cream of tartar, five scruples. Mix. Divide into ten powders. One is a dose. The compound tar-plaster is often very useful. An alterative will be found useful. The daily alkaline sponge-bath must on no account be neglected. Vigorous friction should follow it. If the constitution will bear it, it is well to vary the sponge-bath with an occasional shower-bath. The diet must be simple, yet nourishing, and embracing but a small amount of fat. But, above all, out-door exercise must be taken to the full amount of the strength, and the thoughts occupied with cheerful subjects. Avoid the hot sun, and let the summer exercise be taken in the cool of the day. The recovery from any chronic disease must necessarily be slow, therefore the patient must not be discouraged, but should persevere steadily until the benefit is felt.

Living—Galen's Advice for a Regular Mode of.

Galen, who is said to have reached the great age of 140 years without having ever experienced disease, advises the readers of his *Treatise on Health* as follows:—"I beseech all persons who shall read this work not to degrade themselves to a level with the brutes, or the rabble, by gratifying their sloth, or by eating and drinking promiscuously whatever pleases their palates, or by indulging their appetites of every kind. But whether they understand physics or not, let them consult their reason, and observe what agrees and what does not agree with them, that, like wise men, they may adhere to the use of such things as conduce to their health, and forbear everything which, by their own experience, they find to do them hurt; and let them be assured that, by a diligent observation and practice of this rule, they may enjoy a good share of health, and seldom stand in need of physics or physicians."

Lock-Jaw.

Lockjaw is the popular name for Tetanus. The severe spasm which affects the muscles of the jaws in this disease, although a prominent symptom, is not the only one which exists, as all the muscles of the body are more or less seriously involved. The effects of tetanus very much resemble the symptoms produced by strychnine poisoning. It has recently been ascertained that this disease is highly contagious, and is frequently transmitted to human beings from horses affected with the disorder. It is undoubtedly due to the introduction of a special germ into the wounded surface, and this germ appears to exist within the soil of different localities. The germ acts specially upon the nervous system, producing the violent spasms

which are the characteristic of the disease. Many remedies have been suggested for the treatment of this painful and dangerous affection, among which may be mentioned the administration of chloroform vapor, calabar bean, chloral, etc., but recently a much more successful method of treatment has been introduced, this being the injection under the skin of the attenuated virus of tetanus, or the antitoxine of Tizzoni and Cattani. This disease, however, invariably requires the attention of a physician.

Longevity—or Prolonged Life.

Longevity or prolonged life is popularly believed to be hereditary; people, however, should not calculate upon this as an invariable fact, as frequently the longest-lived parents have very short-lived progeny, whereas parents who have died young have frequently borne children who have lived to a good old age. It is also a fact that those who in infancy and childhood have shown indications of great weakness have survived till they have attained ages long beyond the orthodox three-score years and ten. Old age very much depends upon the care that is taken by the individual when he had youth and middle age on his side. Open-air exercise, regularity in one's habits, and moderation in all things, greatly tend to the prolongation of life.

Lotions.

Lotions are usually applied to the parts required by means of a piece of linen rag or lint, wet with them, or by wetting the bandage itself. They are for outward applications only.

Crab Louse.

Crab-Louse is the vulgar name given to the insect which locates itself

in the hair round the pubes of dirty people, and which gives rise to intolerable itching and sometimes to sores in the parts. It is easily destroyed by the application of mercurial ointment or carbolic oil, while afterwards the parts must be kept clean by means of carbolic soap and water.

Lumbago

Is a form of muscular rheumatism attacking the muscles of the loins. It is an extremely painful affection, and especially so when the affected muscle comes into play. It would appear that the excruciating pain which results from movement is due to a large extent to the fact that the sheath of the muscle becomes inflamed and adherent to the muscular tissue; thus, when the muscle contracts, this acutely inflamed membrane becomes dragged upon, and gives rise to the suffering which is experienced. Lumbago is generally the result of cold, but it may also be brought about by a sudden false movement, by which the muscular tissue is strained and inflammation is set up from this cause. It resembles very much crick in the neck.

Another.—When lumbago is present the treatment should always be commenced by a sharp purge, after which the patient should take a hot sitz-bath for half an hour, and then the affected part should be well rubbed over with the following liniment:—Menthol two drachms, chloroform half an ounce, belladonna liniment one ounce and a half. This application may be rubbed in at intervals of two or three hours, and three drops of the tincture of *actæa racemosa* taken in water every two hours. The patient should keep his bed for a day or two, and during the intervals between the applications of the liniment a hot water cushion should be placed in such a position that he can lie on it, and thus keep it in con-

stant contact with the affected part. After a day or two a system of massaging the part will prove of very great service, as by this process the adhesions of the sheath to the muscle will separate, and thereby the muscle be enabled to perform its movements without dragging upon the inflamed membrane. The best preventive against lumbago is to keep the loins comfortably warm, and employ considerable friction over the parts every morning when taking a bath.

Lungs—How to Ascertain State of.

Persons desirous of ascertaining the true state of their lungs, are directed to draw in as much breath as they conveniently can; they are then to count as far as they are able, in a slow and audible voice, without drawing in more breath. The number of seconds they can continue counting must be carefully observed; in a consumptive the time does not exceed ten, and is frequently less than six seconds; in pleurisy and pneumonia it ranges from nine to four seconds. When the lungs are in a sound condition, the time will range as high as from twenty to thirty-five seconds.

Lungs—How to Strengthen.

Many inventions have been sought out for expanding the lungs, but the following simple means will accomplish the work as well as it can possibly be done. Go into the air, stand erect, throw back the head and shoulders, and draw the air through the nostrils into the lungs as much as possible. After having thus filled the lungs, raise your arms, till extended, and suck in the air. When we have thus forced the arms backwards, with the chest open, change the process by which you draw in your breath, till the lungs are emptied. Go through the process several times a day, and it will enlarge the

chest, give the lungs better play, and serve very much to ward off consumption. If the lungs are tender, or the blood-vessels weak, due care must be used at first not to over-strain them.

Lungs—Inflammation of.

The patient lies upon his back, and has some pain in his side, some difficulty of breathing, a dry cough at first, but soon accompanied by a mixture of phlegm and blood. As the disease increases, this matter becomes more tenacious; there is increased difficulty in breathing; greater prostration; and often some delirium. In the first stage of the disease, the lungs are crowded with blood; in the second the lungs are so swelled and thickened up as to force out the air, and become solid; in the third stage, matter is found diffused through the whole substance of the lungs. The matter raised is thinner, and looks like prune-juice. From this stage persons rarely recover.

Treatment.—The first thing to be done is to give an emetic, either of compound powder of lobelia, tartrate of antimony, or pulverized ipecac. The next thing is to produce sweating by the same means as in pleurisy. If there is much fever, and a rapid pulse, it is better to give tincture of veratrum viride, every hour, in from one to three-drop doses, for the purpose of sweating. Mustard-plaster on the chest, to be put on, and taken off several times, and when the surface grows sore, it must be changed to another, so as to affect the chest extensively.

Open the bowels with a preparation of salts, or magnesia. Give the patient for drinks flaxseed or slippery elm tea, and let the diet be barley-water, lemonade, Indian-meal gruel, very thin, crust coffee, etc. As the fever abates, the cough will need attention. To quiet this, give tartar emetic, one grain; boiling water, ten drams. Mix. Take one teaspoonful every

hour. When the fever is gone, if the patient is feeble and low, give tonics, such as compound infusion of gentian, eight ounces; nitro-muriatic acid, thirty drops. Mix. Take a table-spoonful three times a day; and guard against a relapse.

If the fever takes a typhoid form, great care must be used not to give reducing remedies. The purgatives must be more mild, and the tonics used more freely, while the cough is kept loose by slippery elm, or flaxseed, or marsh-mallow tea.

Mastication.

Mastication is one of the most important points to be attended to in considering the treatment of indigestion. If mastication is not thoroughly completed, the stomach has more to do than its share, and is less able to do it in consequence of the food not having been properly mixed with the saliva before it has left the mouth. If the teeth are deficient in number in persons suffering from dyspepsia, they should be replaced by false teeth, so that the process of mastication may be thoroughly and properly carried out.

Measles.

Measles is one of the eruptive fevers, and, as a rule, only attack a person once in a lifetime. It is, however, not quite so uniform in this respect as scarlet fever or smallpox, as I have known a person to have at least three attacks of measles within the space of a very few years. Measles require fourteen days from the inoculation before they attain their maximum intensity, that is to say, eleven days after contact with the poison.

Symptoms commence by a running at the nose and eyes accompanied by an irritating cough and feverish symptoms. There is also shivering, headache, loss of appetite, and possibly vomiting, with slight sore throat. The

symptoms do not appear until the fourteenth day after contact, or till the fourth day succeeding the first active symptoms, when an eruption begins to appear, generally on the temples and forehead first, then on the wrists, ankles and neck, and gradually extends until the whole body is covered. The eruption of measles has a peculiar appearance, assuming configurations of a horse-shoe shape, the color being reddish-purple, and it is very slightly elevated above the skin. In the course of a few days this eruption gradually declines, and by the seventh day, as a rule, it will have entirely disappeared, leaving the skin slightly rough. Shortly afterwards the cuticle begins to peel off, so that it is advisable to disinfect the patient every day by means of a bath containing carbolic acid. The complications which are most liable to attend the course of measles are inflammatory affections of the eye, bronchitis, and pneumonia, while afterwards the kidneys may be the seat of the disease, if proper precautions against cold are not taken. If the inflammatory condition of the mucous membrane of the nose and eyes has been very severe, permanent injury may result to the eye and to the ear, so that the greatest possible precautions should be taken during the period of convalescence. The fact must not be overlooked that a very malignant or putrid form of measles may develop itself, when the death of the patient is a matter of only a few hours. While measles may be treated (if the disease is very mild) without the aid of a doctor, yet, as a rule, it is the safest plan to employ one, as so many complications may arise which may puzzle the attendant, and at the same time imperil the future health of the patient.

Treatment.—The principal points to attend to in the treatment of this dis-

ease are to see that the bowels are evacuated every day, that the patient be kept in bed, not too warmly but comfortably clad, that he has plenty of milk and milk diet for the first few days, that the room be shaded from light and kept at a moderate temperature, while, if the cough is inveterate or severe, mustard and linseed poultices should be applied to the back and front of the chest, and a small dose of ipecac and squills given by the mouth. The convalescence from this disease should be attended with the greatest care, as exposure to cold and draughts may set up such violent mischief in the parts that have been weakened by the disease as to leave permanent traces of injury in organs such as the ear, eye, chest, and kidneys.

Measles (False) or Rose-Rash.

This appears with the same general symptoms as measles, and continues about five days; or sometimes comes and goes for several weeks. The rash appears in small irregular patches, paler than those of measles, and of a more roseate color. Treatment should be a light diet, acid drinks, and gentle laxatives; or if the disease assumes a darker red, and the patches are more elevated, a tonic is needed.

Medicines—Terms Used to Express Properties of.

Absorbents are medicines which destroy acidity in the stomach and bowels, such as magnesia, prepared chalk, etc.

Alteratives are medicines which restore health to the constitution, without producing any sensible effect, such as sarsaparilla, sulphur, etc.

Analeptics are medicines that restore the strength which has been lost by sickness, such as gentian, Peruvian bark, etc.

Anodynes are medicines which relieve pain, and they are divided into

three kinds, sedatives, hypnotics, and narcotics (see these terms); camphor is anodyne as well as narcotic.

Antacids are medicines which destroy acidity, such as lime, magnesia, soda, etc.

Antalkalies are medicines given to neutralize alkalies in the system, such as citric, nitric, and sulphuric acids, etc.

Anthelmintics are medicines used to expel and destroy worms from the stomach and intestines, such as turpentine, cowhage, male fern, etc.

Antibilious Agents are medicines which are useful in bilious affections, such as calomel, etc.

Antirheumatics are medicines used for the cure of rheumatism, such as colchicum, iodide of potash, etc.

Antiscorbutics are medicines against scurvy, such as citric acid, etc.

Antiseptics are substances used to correct putrefaction, such as bark, camphor, charcoal, vinegar, and creosote.

Antispasmodics are medicines which possess the power of overcoming spasms of the muscles, or allaying severe pains from any cause unconnected with inflammation, such as valerian, ammonia, opium, and camphor.

Aperients are medicines which move the bowels gently, such as rhubarb, manna, and grey powder.

Aromatics are cordial, spicy, and agreeably-flavored medicines such as cardamoms, cinnamon, etc.

Astringents are medicines which contract the fibres of the body, diminish excessive discharges, and act indirectly as tonics, such as oak bark, galls, etc.

Attenuants are medicines which are supposed to thin the blood, such as ammoniated iron, etc.

Balsamics are medicines of a soothing kind, such as tolu, Peruvian balsam, etc.

Carminatives are medicines which allay pain in the stomach and bowels, and expel flatulence, such as aniseed, water, etc.

Cathartics are strong purgative medicines, such as jalap, etc.

Cordials are exhilarating and warming medicines, such as aromatic confection, etc.

Corroborants are medicines and food which increase the strength, such as iron, gentian, meat, and wine.

Demulcents correct acrimony, diminish irritation, and soften parts by covering their surfaces with a mild and viscid matter, such as linseed-tea, gum, mucilage, honey, and marsh-mallow.

Deobstruents are medicines which remove obstructions, such as iodide of potash, etc.

Detergents clean the surfaces over which they pass, such as soap, etc.

Diaphoretics produce perspiration, such as tartrate of antimony, James's powder, and camphor.

Digestives are remedies applied to ulcers or wounds, to promote the formation of matter, such as resin, ointments, warm poultices, etc.

Discutients possess the power of repelling or resolving tumors, such as galbanum, mercury, and iodine.

Diuretics act upon the kidneys and bladder, and increase the flow of urine, such as nitre, squills, cantharides, camphor, antimony, and juniper.

Drastics are violent purgatives, such as gamboge, etc.

Emetics produce vomiting, or the discharge of the contents of the stomach, such as mustard and hot water,

tartar-emetic, ipecacuanha, sulphate of zinc, and sulphate of copper.

Emmenagogues are medicines which exercise a direct action on the uterus or womb, provoking the natural periodical secretion, such as castor, assafoetida, galbanum, iron, mercury, aloes, hellebore, savine, ergot of rye, juniper, and pennyroyal.

Emollients are remedies used externally to soften the parts they are applied to, such as spermaceti, palm oil, etc.

Epispastics are medicines which blister or cause effusion of serum under the cuticle, such as Spanish flies, Burgundy pitch, rosin, and galbanum.

Errhines are medicines which produce sneezing, such as tobacco, etc.

Escharotics are medicines which corrode or destroy the vitality of the part to which they are applied, such as lunar caustic, etc.

Expectorants are medicines which increase expectoration, or the discharge from the bronchial tubes, such as ipecacuanha, squills, opium, ammoniacum.

Febrifuges are remedies used in fevers, such as all the antimonials, bark, quinine, mineral acids, arsenic.

Hydragogues are medicines which have the effect of removing the fluid of dropsy, by producing watery evacuations, such as gamboge, calomel, etc.

Hypnotics are medicines that relieve pain by procuring sleep, such as hops, henbane, morphia, poppy.

Laxatives are medicines which cause the bowels to act rather more than is natural, such as manna, etc.

Narcotics are medicines which cause sleep or stupor, and allay pain, such as opium, etc.

Nutrients are remedies that nourish the body, such as sugar, sago, etc.

Paregorics are medicines which actually assuage pain, such as compound of tincture of camphor, henbane, hops, opium.

Prophylactics are remedies employed to prevent the attack of any particular disease, such as quinine, etc.

Purgatives are medicines that promote the evacuation of the bowels, such as senna, aloes, jalap, salts.

Refrigerants are medicines which suppress an unusual heat of the body, such as wood-sorrel, tamarind, etc.

Rubefacients are medicaments which cause redness of the skin, such as mustard, etc.

Sedatives are medicines which depress the nervous energy, and destroy sensation, so as to compose, such as foxglove. (See Paregorics.)

Sialogogues are medicines which promote the flow of saliva, or spittle, such as salt, calomel, etc.

Soporifics are medicines which induce sleep, such as hops, etc.

Stimulants are remedies which increase the action of the heart and arteries, or the energy of the part to which they are applied, such as food, wine, spirits, ether, sassafras, which is an internal stimulant, and savine, which is an external one.

Stomachics restore the tone of the stomach, such as gentian, etc.

Styptics are medicines which constrict the surface of the part, and prevent the effusion of the blood, such as kino, friars' balsam, extract of lead, and ice.

Sudorifics promote profuse perspiration or sweating, such as ipecacuanha, antimony, James's powder, ammonia.

Tonics give general strength to the constitution, restore the natural energies, and improve the tone of the system, such as all the vegetable bitters, most of the minerals, also some kinds of food, wine, and beer.

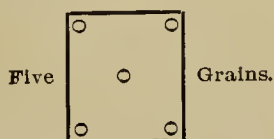
Vesicants are medicines which blister, such as strong liquid ammonia, etc.

Mixing Medicines—Articles Required for.

Three glass measures, one to measure ounces, another to measure drachms, and a measure for minims, drops, or small doses. A pestle and mortar, both of glass and Wedgwoodware, a glass funnel, and glass stirring rods. A spatula, or flexible knife for spreading ointments, making pills, etc. A set of scales and weights. A small slab of marble, or porcelain, for making pills upon, mixing ointments, etc.

Medicine Weights.

Medicines are made up by troy weight, although drugs are bought by avoirdupois weight. In the box containing the scales and weights there are several square pieces of brass, of different sizes and thicknesses, and stamped with a variety of characters. These are the weights, which may now be explained. There are twelve ounces to the troy pound, which is marked lb.; the ounce, which contains eight drachms, is marked $\mathfrak{z}\text{i}$; the drachm, containing three scruples is marked $\mathfrak{z}\text{ii}$; and the scruple of twenty grains is marked $\mathfrak{z}\text{iii}$. The grain weights are marked by little circles, thus:—



In England the grain weights, in addition to the circles denoting their several weights, bears also the stamp of a crown. Care must be taken not

to mistake this for one of the numerals. Besides these weights there are others marked $\mathfrak{z}\text{ss}$, which means half-a-scruple; $\mathfrak{z}\text{ss}$, meaning half-a-drachm, and $\mathfrak{z}\text{ss}$, meaning half-an-ounce. When there are ounces, drachms, or scruples, the number of them is shown by Roman figures, thus:—i. ii. iii. iv. v., etc., and prescriptions are written in this style.

Medicine Measures.

Liquid medicines are always measured by the following table:—

60 minims...	are contained in	1 fluid drin.
8 fluid drms.		1 fluid oz.
20 fluid ozs..		1 pint.
8 pints.....		1 gallon.

And the signs which distinguish each are as follows:—c. means a gallon o, a pint; $\mathfrak{f}\mathfrak{z}$, a fluid ounce; $\mathfrak{f}\mathfrak{z}$, a fluid drachm, and m, a minim, or drop. Formerly drops used to be ordered, but as the size of a drop must necessarily vary, minims are always directed to be employed now for any particular medicine, although for such medicines as oil of cloves, essence of ginger, etc., drops are frequently ordered. When proper glass measures are not at hand, it is necessary to adopt some other method of determining the quantities required, and therefore the following table has been drawn up for that purpose:—

A tumbler....	usually contains about	10 ounces.
A teacup.....		6 ounces.
A wineglass...		2 ounces.
2 tablespoons..		1 ounce.
A tablespoon..		4 drms.
A dessertspoon		2 "
A teaspoon....		1 drm.

These quantities refer to ordinary sized spoons and vessels. Some cups hold half as much more, and some tablespoons contain six drachms. A medicine glass, which is graduated so as to show the number of spoonfuls it contains, should be kept in every family.

Medicines—Process of Making.

To Powder Substances.—Place the substance in the mortar, and strike it gently with direct perpendicular blows of the pestle, until it separates into several pieces, then remove all but a small portion, which bruise gently at first, and rub the pestle round and round the mortar, observing that the circles described by the pestle should gradually decrease in diameter, and then increase again, because by this means every part of the powder is subjected to the process of pulverization.

Some substances require to be prepared in a particular manner before they can be powdered, or to be assisted by adding some other body. For example, camphor powders more easily when a few drops of spirits of wine are added to it; mace, nutmegs, and such oily aromatic substances are better for the addition of a little white sugar; resin and gum-resins should be powdered in a cold place, and if they are intended to be dissolved, a little fine well-washed white sand mixed with them assists the process of powdering. Tough roots, like gentian and calumba, should be cut into thin slices; and fibrous roots like ginger, cut slanting, otherwise the powder will be full of small fibres. Vegetable matter, such as peppermint, loosestrife, senna, etc., requires to be dried before it is powdered. Be careful not to pound too hard in glass, porcelain, or Wedgwood-ware mortars; they are intended only for substances that pulverize easily, and for the purpose of mixing or incorporating medicines. Never use acids in a marble mortar, and be sure that you do not powder galls or any other astringent substance in any but a glass mortar.

Sifting is frequently required for powdered substances, and this is usually done by employing a fine

sieve, or tying the powder up in a piece of muslin, and striking it against the left hand over a piece of paper.

Filtering is frequently required for the purpose of obtaining clear fluids, such as infusions, eyewashes, and other medicines; and it is, therefore, highly important to know how to perform this simple operation. First of all take a square piece of white blotting paper, and double it over so as to form an angular cup. Open out this filter paper very carefully, and having placed it in a funnel, moisten it with a little water. Then place the funnel in the neck of the bottle, and pour the liquid gently down the side of the paper, otherwise the fluid is apt to burst the paper.

Maceration is another process that is frequently required to be performed in making up medicines, and consists simply in immersing the medicines in cold water or spirits for a certain time.

Digestion resembles maceration, except that the process is assisted by a gentle heat. The ingredients are placed in a flask, such as salad oil is sold in, which should be fitted with a plug of tow or wool, and have a piece of wire twisted round the neck. The flask is held by means of the wire over the flame of a spirit lamp, or else placed in some sand warmed in an old iron saucepan over the fire, care being taken not to place more of the flask below the sand than the portion occupied by the ingredients.

Infusion is one of the most frequent operations required in making up medicines, its object being to extract the aromatic and volatile principle of substances, that would be lost by decoction, or digestion; and to extract the soluble from the insoluble parts of bodies. Infusions as calumba and quassia may be made with cold water, in which case they

are weaker, but more pleasant. The general method employed consists in slicing, bruising, or rasping the ingredients first, then placing them in a common jug (which should be as globular as possible), and pouring boiling water over them. Cover the jug with a cloth folded six or eight times, but if there be a lid to the jug so much the better. When the infusion has stood the time directed, hold a piece of very coarse linen over the spout, and pour the liquid through it into another jug.

Decoction, or boiling, is employed to extract the mucilaginous or gummy parts of substances, their bitter, astringent, or other qualities, and is nothing more than boiling the ingredients in a saucepan with the lid slightly raised. Be sure never to use an iron saucepan for astringent decoctions, such as oak-bark, galls, etc., as they will turn the saucepan black, and spoil the decoction. The enameled saucepans are very useful for decoctions, but an excellent plan is to put the ingredients into a jar and boil the jar, thus preparing it by a water bath, as it is technically termed; or by using a common pipkin, which answers still better. No decoction should be allowed to boil for more than ten minutes.

Extracts are made by evaporating the liquors obtained by infusion in decoction, but these can be bought much cheaper and better of chemists and druggists, and so can tinctures, confections, cerates and plasters, and syrups: but as every one is not always in the neighborhood of druggists, we shall give recipes for those most generally useful, and the method of making them.

Medicines—Precautions to Be Observed in Giving.

Sex.—Medicines for females should not be so strong as those for males,

therefore, it is advisable to reduce the doses about one-third. This, however, varies greatly.

Temperament.—Persons of a phlegmatic temperament bear stimulants and purgatives better than those of a sanguine temperament, therefore the latter require smaller doses.

Habits.—Purgatives never act so well upon persons accustomed to take them as upon those who are not, therefore it is better to change the form of purgative from pill to potion, powder to draught, or aromatic to saline. Purgatives should never be given when there is an irritable state of the bowels.

Stimulants and Narcotics never act so quickly upon persons accustomed to use spirits freely as upon those who live abstemiously.

Climate.—The action of medicines is modified by climate and seasons. In summer, certain medicines act more powerfully than in winter, and the same person cannot bear the dose in July that he could in December.

General Health.—Persons whose general health is good bear stronger doses than the debilitated and those who have suffered for a long time.

Idiosyncrasy.—By this is meant a peculiar temperament or disposition not common to people generally. For example, some persons cannot take calomel in the smallest dose without being salivated, or rhubarb without having convulsions; others cannot take squills, opium, senna, etc.; and this peculiarity is called the patient's idiosyncrasy, therefore it is wrong to insist upon their taking these medicines.

Doses of Medicine for Different Ages.—It must be plain to every one that children do not require such powerful medicine as adults or old people, and therefore it is desirable to

have some fixed method of determining or regulating the administration of doses of medicine. Now let it be supposed that the dose for a full-grown person is one drachm, then the following proportions will be suitable for the various ages given, keeping in view other circumstances, such as sex, temperament, habits, climate, state of general health, and idiosyncrasy. All forms of opium should be avoided for a child under five years unless ordered by a medical man.

Age	Proportion	Proportionate Dose
7 weeks	one-fifteenths	or grains 4
7 months	one-twelfth	or grains 5
Under 2 years	one-eighth	or grains 7½
" 3 "	one-sixth	or grains 10
" 4 "	one-fourth	or grains 15
" 7 "	one-third	or scruple 1
" 14 "	one-half	or drachm ½
" 20 "	two-third	or scruples 2
Above 21	the full dose	or drachm 1
" 65 "	the inverse	gradation

Intervals between Doses.—Medicines should be given in such a manner that the effect of the first dose shall not have ceased when the next dose is given, therefore the intervals between the doses should be regulated accordingly. Fluids act quicker than solids and powders sooner than pills.

Medicines—To Prevent The Nauseous Taste of.

Castor oil may be taken in milk, coffee, or spirit, such as brandy; but the best method of covering the nauseous flavor is to put a tablespoonful of strained orange juice in a wine-glass, pour the castor oil into the centre of the juice, and then squeeze a few drops of lemon juice upon the top of the oil. The wineglass should first be dipped, rim downwards, into water, so that the interior may be wetted. Cod-liver oil may be taken, like castor oil, in orange juice. Peppermint water neutralizes, to a great extent, the nauseous taste of Epsom

salts; a strong solution of extract of liquorice, that of aloes; milk, that of cinchona bark; and cloves, that of senna.

Another Method is to have the medicine in a glass, as usual, and a tumbler of water by the side of it; take the medicine, and retain it in the mouth, which should be kept closed, and if drinking the water be then commenced, the taste of the medicine is washed away. Even the bitterness of quinine and aloes may be prevented by this means. If the nostrils are firmly compressed by the thumb and finger of the left hand, while taking the nauseous draught, and so retained till the mouth has been washed out with water, the disagreeable taste of the medicine will be almost imperceptible.

Megrim.

A neuralgic affection of the head generally confined to one side, and affecting the temporal nerve. It is a disease which is liable to come and go, but is always associated with a debilitated condition of the system at large, and this is generally combined with constipation causing a sluggish action of the liver. The best remedy for the painful affection is two grains of caffeine combined with four grains of phenacetine, which may be repeated at intervals of four hours if necessary. This is very much more efficacious than the old method of treatment by quinine.

Menstruation—Retained.

This may be known by a sense of weight or fulness in the pelvic regions which is increased at each menstrual period; a feeling of weakness and heaviness in the back and loins, aching sensation down the thighs, etc. The treatment requires the aid of a surgeon.

Menstruation—Painful.

This is generally caused by sudden colds at the menstrual period, or soon

after delivery, by exhaustion, caused by the luxurious indulgences of civilized life, by unnatural or excessive excitement of the organs. The symptoms are pain in the pelvis, weakness and distress in the small of the back, tenderness and swelling of the breasts, headache, etc. Clots of blood are formed in the uterus, and sometimes a false membrane is thrown off, either entire or in shreds, which is expelled with violent bearing-down efforts, with intervals of comparative ease, like those of child-birth. These pains and the expulsion of a membrane might readily be mistaken for a miscarriage. The attacks last from one to four days, during which time many patients are unable to walk, or even stand, and especially so during the bearing-down contractions of the uterus, while others are obliged to keep their beds. A cure can only be effected by means of proper treatment during the intervals. The bowels should be kept regular by right diet, and, when constipated, should be freed by enemata of tepid water. Vaginal injections of warm water, and warm or hot sitz-baths, should be employed. Every law of health should be observed and every possible cause of ill health abstained from. A free, happy, unexcited and unexhausting life will greatly help. During the attack a cold or hot sitz-bath should be taken and continued while the pain lasts. The relief is more immediate by the hot bath; but the cold bath, at a temperature of from sixty to seventy-five degrees, is the best. At the same time a hot foot-bath, as well as vaginal injections, may be employed. These baths should be repeated on every return of the pain.

Milk Sickness.

This is a disease which prevails in the West, in the neighborhood chiefly of level, heavily timbered, rather wet oak land. The plant the eating of which causes the milk to be poisonous is not

known. The symptoms of the disease are, a sickness at the stomach, and weakness and trembling of the legs. There is vomiting, and a peculiarly offensive breath. These symptoms continue for weeks, and are often all that are shown in this complaint; but in some severer cases, there are chills and flashes of heat, great oppression about the heart, anxiety, deep breathing, heat in the stomach, violent retching and vomiting, alarming beatings of the heart, and throbbing of the large vessels, and cold extremities. In most cases, the vomiting returns every hour or two, attended by a great burning at the pit of the stomach, the substance thrown up having a peculiar bluish green color, and a sour smell. As soon as this discharge takes place the patient falls back upon the pillow and lies easy until another turn comes round. The tongue is covered with a whitish coat and the bowels are obstinately costive. The pulse is small and quick. The treatment does not vary much from that pursued for inflammation of the stomach.

Mouth—Ulceration of.

This frequently takes place in children whose state of health is below par. It is caused chiefly by a disordered state of the stomach, but occasionally the cause is local, viz., the stump or sharp edge of a decayed tooth. The ulcers sometimes appear as little white specks on the tongue and lining membrane of the mouth, constituting the disease called thrush or aphthæ. This form is frequently seen in infants when nursing, and may be transferred from the infant's mouth to the mother's nipple.

When the ulcers are caused by a disordered state of the stomach, two or three tablespoonfuls of the following mixture should be taken every second or third morning: powdered rhubarb and bicarbonate of soda, of each two

drachms; infusion of rhubarb and infusion of gentian, of each four ounces. Mix. When caused by the sharp edge or stump of a tooth, the tooth must be removed or the sharp edge filed away. Children suffering from thrush should be given a nutritious diet with tonics; the tongue and inside of the mouth should be freely painted over with a gargle, composed of borax, two drachms, and glycerine, one ounce, a camel's hair pencil being used.

Mumps.

An infectious disease of a somewhat epidemic character, and consisting essentially in an inflammatory condition of the salivary glands on either side of the jaw. It is essentially a disease of childhood, and commences with more or less fever, preceded by a shivering sensation. After the fever the neck on either side of the jaw becomes much swollen, and may interfere very much with both swallowing and breathing, and in every instance prevents the jaws from being opened to their full extent. In four or five days the swelling and acute suffering begin to disappear, and rarely does the inflammatory action proceed so far as to produce suppuration, but this contingency should always be held in view.

Treatment.—The proper treatment is to keep the child indoors, attend to the bowels, and apply over the swollen surface a flannel dipped in olive oil, or saturated with liniment of belladonna and soap liniments in equal proportions. After a day or two the applications may consist of equal portions of belladonna, soap and opium liniment, and compound camphor liniment. It is a curious coincidence in affections of the parotid glands, of which mumps is one, that the disease may by the process of metastasis disappear from the neck and appear in the testicles in boys, or in the breasts of girls. Mumps may

be looked upon as a disease quite devoid of danger if properly attended to.

Nails—Care of the.

The nails should be kept clean by the daily use of the nail brush and soap and water. After wiping the hands, but while they are still soft from the action of the water, gently push back the skin which is apt to grow over the nails, which will not only preserve them neatly rounded, but will prevent the skin cracking around their roots (nail springs), and becoming sore. The points of the nails should be pared at least once a week; biting them should be avoided.

Nails—Biting the.

This is a habit that should be immediately corrected in children, as, if persisted in for any length of time, it permanently deforms the nails. Dipping the finger-ends in some bitter tincture will generally prevent children from putting them to the mouth; but if this fails, as it sometimes will, each finger-end ought to be encased in a stall until the propensity is eradicated.

Nails—To Whiten.

The best wash for whitening the nails is two drachms of diluted sulphuric acid, one drachm of tincture of myrrh, added to four ounces of spring water; first cleanse the hands, and then apply the wash.

Neck.

The bond of union between the head and trunk of the body is anatomically and surgically the most important region of the frame. It is the channel of communication of the nervous apparatus supplying the body with that of the brain, and through it runs the large blood-vessels named the "carotid arteries," which supply the brain with blood; and through it descend the important veins, carrying the blood from the head. Within the neck also are

the œsophagus and windpipe, in front of which lies the thyroid gland, which becomes enlarged in goitre and bronchocele. In the neck also are situated the parotid and submaxillary glands, which secrete the saliva. The diseases of the neck, from the great number of important vessels and organs it contains, are very numerous. The muscles which keep the head balanced in its proper position are liable to rheumatic affections and contractions. Crik is one of those acutely painful diseases which may suddenly develop in the muscles of the neck, when the slightest movement gives rise to the most excruciating pain. To soothe this the following liniment will be found most efficacious:—Menthol, two drachms; chloroform, one-half an ounce; belladonna liniment, one and one-half ounces. A little to be well rubbed in every two or three hours. Wry neck, on the other hand, is due to a spasmodic contraction of one of the lateral muscles of the neck, anatomically termed “sterno-mastoid.” This disfigurement may be removed by surgical measures, viz., by dividing the muscle.

Nervousness.

The cure of nervousness is best effected by restoring the healthy action of the stomach and bowels, and by the use of proper exercise, especially in the open air. The stomach should not be overloaded with indigestible food, and the bowels should be occasionally relieved by the use of some mild aperient. Abernethy’s injunction to a nervous and dyspeptic lady, “Dismiss your servants, madam, and make your own beds,” should be recollected by all as a proof of the importance that eminent surgeon attached to exercise.

Nettle—The Sting of

May be cured by rubbing the part with rosemary, mint, or sage leaves. Dock leaves are also said to supply an effectual remedy.

Neuralgia.

Or pain in a nerve, may find a seat in any of the sensory nerves which ramify in the head, body, or limbs. As is well known, it is one of the most painful affections to which the body can be subjected. The most common seat of neuralgia is the head, when it is termed *tic-doloureux*. Toothache is a species of neuralgia, but its causes are not so difficult of explanation as the pain of neuralgia when it affects other nerves. In most instances the pain is really the only symptom that exists, but it may be accompanied with marked constitutional disturbances. The exact cause of the disease is sometimes a little difficult to decipher, but it is due either to pressure upon the nerve external to itself, or in consequence of inflammation taking place in its sheath or within the nerve substance itself, or, as in the case of decayed teeth, it may proceed from the irritation of one of its branches, which irritation is conveyed to the whole of the nerve from which this branch takes its origin. It may generally be accepted as a rule, that when neuralgia exists it is more a symptom of general debility than a disease in itself. There are, of course, exceptions to this rule, and especially is this the case in sciatica, which is neuralgia of the sciatic nerve. Then, again, neuralgia is not unfrequently associated with gastric disturbances, which give rise to an acid condition of the system, developing a gouty or rheumatic condition of the blood. When the disease arises from such a cause it is generally of a more persistent and acute character than when it simply depends upon an impoverished state of the nervous system. It is quite unusual for this disease to attack two sides of the body simultaneously, but is usually located in one side of the head, neck, body or limbs, although it may leave the one

side and fly to the other. It is characterized by excruciating pain, this being of a paroxysmal and piercing character, sometimes increasing to such an extent as almost to produce delirium. It then disappears when the paroxysm has spent itself, but only again to return with renewed violence in a longer or shorter period. Some forms of neuralgia are quite periodic in their attacks; these are generally associated with some malarial condition of the blood.

Treatment.—The great remedy for neuralgia used to be quinine, and sometimes it was taken to such an extent as to produce serious injury to the organs of hearing, upon which it exercises a special influence. It is, however, no use trusting to medicine alone in the treatment of this painful disorder. The first point to attend to is, to endeavor to bring up the general health by suitable nourishment and stimulants, if need be, while the condition of the bowels should be most carefully attended to, and, if the paroxysms are severe, 4 grains of phenacetin with 2 grains of caffeine, repeated at intervals of four hours, will probably give relief more rapidly than anything else. At the same time a tonic containing quinine 2 grains, caffeine $1\frac{1}{2}$ grains, extract of belladonna $\frac{1}{8}$ of a grain, and extract of hop 2 grains, made into a pill, may be taken three or four times a day with great advantage. If the blood is attenuated, which frequently is the case when neuralgia exists, the administration of iron will be essential. As a local application the following liniment will probably give the speediest relief, viz.:—3 drachms of menthol, $\frac{1}{2}$ ounce of chloroform, $1\frac{1}{2}$ ounces of belladonna liniment, mixed, a little of which should be well rubbed in over the pained part at frequent intervals. The following ointment has also proved

very efficacious in the author's hands, viz.:—6 grains of veratrum, 6 grains of morphia, rubbed up with $\frac{1}{2}$ an ounce of vaseline, and a piece the size of a small pea to be well rubbed in over the painful part. In sciatica, menthol plasters placed over the course of the nerve have frequently given great relief. Unfortunately, many suffering from sciatica have resorted to the pernicious habit of injecting morphia subcutaneously for the relief of the pain. This is a great mistake, as frequently the opium habit has been contracted by such a practice. In persons who are subject to neuralgic attacks it is essential that particular attention be observed in the matter of clothing, and flannel should invariably be worn next the skin, while exposure to damp and cold should be avoided as much as possible. When neuralgia is very persistent a change of air to a dry bracing atmosphere will frequently prove very beneficial. In these circumstances, that is when the disease has become chronic, phosphorus administered for a lengthened period in the form of a pill will often prove of great service. When neuralgia attacks the stomach it is termed "gastralgia." When it affects the muscles of the chest it is called "pleurodynia," when the heart is affected very dangerous symptoms, termed "angina pectoris," may result, and this is not unfrequently terminates in death. Earache, or otalgia, is another form of this painful affection of the nerves, and must be distinguished from abscess or inflammation of the internal ear.

Nightmare.

Nightmare is that peculiar vivid hallucination which so frequently occurs during the night in those who are suffering from indigestion or constipation. It is in reality a hyperactive condition of the brain without

the control of the will being brought to act as the balancing power and prevent it from having its full sway. It frequently gives rise to what are called night-terrors in children, and in many instances, even in adults, appears so real as to affect the nervous system very seriously when it occurs. Nightmare generally partakes somewhat of the nature of a tragedy, and the scene which rises before the imagination of the individual is one full of horror, and appears for the time being to be so real as to give rise to screams, indicating the terror that the sleeper is possessed with. So real does the scene that is being enacted appear to the sleeper, that it frequently results in somnambulism. In short, nightmare is neither more nor less than a temporary delirium in a person whose functions are only disturbed for the time being. The proper remedy for this distressing nervous disturbance is, to avoid everything that is indigestible and pay proper attention to the bowels, as it will certainly recur if either of these injunctions are ignored.

Nipples—Sore.

Nursing mothers are sometimes seriously troubled with this painful affliction, and would be willing to make almost any sacrifice to have a cure for it. The following simple mixture, will give immediate relief: Powdered borax, a small, even teaspoonful; pure water two-thirds of a teacupful, alcohol, one and a half tablespoonful. Mix and use, washing the nipples with it. Or take ripe raw tomatoes, pare and cut them up; then stir in flour enough to make a stiff dough. Roll and work it with the hands until it becomes very smooth. Spread a thin plaster and apply it to the affected part with a cloth over it, changing the dry plasters for fresh ones as often as necessary. This keeps up a constant perspiration,

which is what is needed. If you cannot get tomatoes, a dough made with cold water and flour will answer.

Ointment for Sore Nipples.—Take of tincture of tolu, two drachms; spermaceti ointment, half an ounce; powdered gum, two drachms. Mix these materials well together to make an ointment. The white of an egg mixed with brandy is the best application for sore nipples; the person should at the same time use a nipple shield.

Nose-Bleed or Epistaxis.

Epistaxis is the technical term applied to bleeding from the nose. When this occurs great benefit will often be derived from the simple method of holding up the hands above the level of the head, also by the application of cold to the spine. When, however, the bleeding is persistent, it may be necessary to plug the nares. This is most efficiently accomplished by introducing an india-rubber bag of a cylindrical shape, and filling it while within the nares either with water or air, and thus bringing pressure to bear upon the bleeding surface. Cotton wool is also used as a plug in these circumstances, and before its introduction the plugs may be saturated with an astringent solution, such as a solution of tannin or per-chloride of iron. Some people, in consequence of the peculiar structure of the veins, are very liable to frequent bleeding from the nose. These patients should be treated for a lengthened period by the administration of remedies which are known to have a special effect upon blood and the veins. The most useful of these are tincture of iron and the extract of witch hazel or hamamelis.

Other Remedies.—This may generally be stopped by putting a plug of lint into the nostrils. If this does not do, apply a cold lotion to the forehead

raise the head, and place over it both arms, so that it will rest on the hands; dip the lint plug, slightly moistened, into some powdered gum arabic, and plug the nostrils again; or dip the plug into equal parts of powdered gum arabic and alum, and plug the nose. Or the plug may be dipped in friars' balsam, or tincture of kino. Heat should be applied to the feet; and, in obstinate cases, the sudden shock of a cold key, or cold water poured down the spine, will often instantly stop the bleeding. If the bowels are confined, take a purgative.

Noses (Large)—To Make Small.

Dr. Cid, an inventive surgeon of Paris, noticed that elderly people, who for a long time have worn eyeglasses supported on the nose by a spring, are apt to have this organ long and thin. This he attributes to the compression which the spring exerts on the arteries by which the nose is nourished. The idea occurred to him that the hint could be made useful. Not long afterward, a young lady of fifteen years consulted him to see if he could restore to moderate dimensions her nose, which was large, fleshy and unsightly. The trait, he found, was hereditary in her family, as her mother and sister were similarly affected. This was discouraging, as hereditary peculiarities are particularly obstinate. But the doctor determined to try his method; he took exact measurements, and had constructed for her a "lunette pince-nez"—a spring and pad for compressing the artery—which she wore at night and whenever she conveniently could in the daytime. In three weeks a consolatory diminution was evident, and in three months the young lady was quite satisfied with the improvement in her features.

Nursing Sick Children.

This is a more delicate task than nursing adults. The greatest watch-

fulness and judgment are necessary to determine the meaning of their symptoms, and in giving medicines. Just as great care should be observed not to disturb them, as if they were able to make complaints of any carelessness. Let the room, where a sick child is, be shady, quiet, and cool. Be careful not to speak so suddenly as to startle the half-sleeping patient; and handle it with the greatest tenderness, when it is necessary to move it.

If it is the lungs that suffer, have the little patient somewhat elevated upon pillows for easier breathing, and do everything to soothe and make it comfortable, so as not to have it cry, and thus distress its inflamed lungs.

In all fevers and bowel complaints, especial attention must be given to frequent sponging of the skin with tepid water; and great care exercised not to burden the stomach with too much food or drink. If the skin becomes irritated for any reason, sprinkle it with flour or pulverized starch. If the child is very weak, be careful not to move it too suddenly, as it may be startled into convulsions. In administering a bath, the greatest pains must be taken not to frighten the child. It should be put in so gradually and so insensibly amused by something placed in the water on purpose, as to forget its fear.

Nutritive Enema.

Take eight tablespoonfuls of strong beef-tea and add the yolk of one egg well beaten up. May be given every six hours, the bowel being well washed out first with one pint of warm water given as an enema.

Oats,

As an article of diet, should occupy the first place of all the cereals, containing as it does a larger amount of gluten and flesh and bone-forming substances than the others. It is most largely used in Scotland, and forms the staple

food of the agricultural classes. There is probably no more nutritious article of diet than well-made oatmeal porridge, when taken with milk. It is also employed, as is well known, in the manufacture of gruel, and in the form of oat-cakes. When oatmeal is partaken of largely as an article of diet it is liable to give rise to acidity of the stomach and heartburn. This is due to the fact that it gradually ferments in the stomach if it is not immediately digested, and people who take oatmeal require a considerable amount of exercise to make it agree with their stomachs; hence its popularity among those whose occupation is out-of-doors. In some people, when oatmeal is eaten it produces an eruption on the skin, due to the acidity which it is liable to give rise to. Oatmeal has the advantage of acting as a slight laxative, so it is especially useful to those who are of a costive habit. It should always be thoroughly cooked if not steam cooked, as it is now usually prepared.

Ointments and Cerates.

These remedies are used as local applications to parts, generally ulcers. They are usually spread upon linen or other materials.

Old Age

Is usually said to commence in women about the fifty-third year, and in men about the sixtieth year, although many women retain their health and vigor for a much longer period. As old age advances, disease of a serious nature is more liable to develop than at an earlier period of life, such, for example as gout, gravel, rheumatism, apoplexy, paralysis, cancer, etc., and it is at this period of life that the effects of dissipation and excess in early life are liable to manifest themselves. Old people should always be well nourished, and care should be taken how

they attempt to depart from the habits which they have formed, either in the way of eating or drinking or clothing, as a little thing at this period of life may result in very serious consequences. Particular attention should be given to the preservation of the teeth, and if these have disappeared they should be immediately replaced by artificial ones, as mastication is essential to digestion and to the prevention of dyspepsia. If there is difficulty in mastication, the table mincer should be brought to the aid of the individual. The meals should all be light, and not at too long intervals. The principal meal of the day should be taken about one or two o'clock in the afternoon, and not late in the evening. Then, particular care should be observed in clothing old people, as their power of resisting cold is very much decreased by advancing years. Woolen clothing should therefore be worn next the skin by all elderly people. Exercise to a moderate degree should be taken every day, but over-fatigue carefully avoided. Injuries of all kinds are more apt to end seriously in the aged than in younger people, partly in consequence of the more languid state of the circulation, and because the nervous system is not so able to sustain shock. Sleeplessness is a common complaint in elderly people, but fortunately sleep is not so essential to their health as it is in younger people. When, however, sleep is difficult to procure, it will be found that taking a light meal shortly before going to bed will aid very much in inducing sleep. Constipation is also liable to occur in elderly people, and this must be carefully guarded against by judicious administration of aperient medicine, or an enema composed of a tablespoonful of salt dissolved in a pint of warm water may be given every second day. As is well known, the faculties are liable to give way more or

less as age advances, especially those of sight and hearing.

Optical Illusions or Delusions.

Optical illusions or delusions are the result of a disordered action of the nervous system. These delusions are always indicative of disturbances of the functions of the brain which are reflected through the optic nerve. They may also arise from a vitiated condition of the blood circulating in the nervous system, this impure condition being produced by absorption of faecal matter from the colon, of bile or of urea. Optical illusions are always present when alcohol has been indulged in to excess, and these are invariably the first symptoms which show themselves in delirium tremens.

Pain.

Pain may be described as an aggravated irritation of the nerves. It may be said that it is due to an aggravated irritation, of which sensation is the modified form. Injury to the nerves in every instance produces pain, whereas slight contact may produce a pleasing sensation, which, when increased, may give rise to what we recognize as tickling, and this may be carried to such an extent as to so excite the nerves as to produce actual pain, and if persisted in, delirium. Pain, in one sense, is a provision of nature to enable us to recognize injuries, and the fear of it is such as to make us take every precaution to avoid it. By the fact of pain being present in any particular part of the body, the physician is enabled to form his diagnosis, and the character of the pain will often enable him to determine whether it is of inflammatory, neuralgic, or rheumatic origin. It is a well-known fact that nervous people bear pain with much less fortitude than those of a more phlegmatic nature. It is therefore not always

an evidence that the pain is severe because the patient complains bitterly of it. Some people would appear to be entirely devoid of the sensation of pain, even when they require to undergo operations of a serious nature, while others are the very antipodes of this. Nature has, however, provided means by which pain can not only be alleviated, but entirely destroyed; and operations which were at one time impossible are now, by the introduction of chloroform, rendered not only painless, but free from many of the risks which formerly would have attended them. The author has frequently had patients under chloroform, who have required operations necessitating the greatest care, attention, and leisure in their performance, without the slightest appearance of danger presenting itself. When pain is local, or due to disease, the most popular remedies are opium, hyoscyamus, cocaine, etc.

Pain-Killer—Perry Davis'.

Alcohol 1 quart, gum guaiac 1 ounce, gums myrrh and camphor, and Cayenne (pulverized), of each $\frac{1}{2}$ ounce. Mix. Shake occasionally for a week or 10 days, and filter or let settle for use. Apply freely to surface pains, or it may be taken in teaspoon doses for internal pains, and repeat according to necessities.

Pain Extractor.

Spirits of ammonia 1 ounce, laudanum 1 ounce, oil of organum 1 ounce, mutton tallow $\frac{1}{2}$ a lb.; combine the articles with the tallow when it is nearly cool.

Pain—Sedative Lotion for.

Dissolve one drachm of extract of henbane in twenty-four drachms of water.

Papulous Scall.

Papulous scall is a mattery pimple developed in a highly inflamed skin.

The blisters are about the size of a split pea, and are surrounded by a red ring. They are generally separate, not clustered like crusted tetter. They are scattered over various parts of the body, and are followed by a hard black crust, or by a sore. The disease is either acute or chronic. The chronic form is found in weakly children, or persons reduced by sickness or low living.

Treatment.—For the acute form, low diet, gentle laxatives, cold sponge-bath on the sound parts, and an ointment of oxide of zinc, one drachm; spermaceti ointment, one ounce, mixed. For the chronic form, tonics should be given internally, and the above ointment used.

Physical Training—Rules for.

Too many systems of physical culture tend to strain the muscular system rather than train it. In all systems care should be taken to make the work progress gradually. Fitzsimmons, the boxer, gives the following rules for training:

1. Don't smoke.
2. Don't drink.
3. Don't chew.
4. Get all the pure fresh air you can.
5. Get all the sleep you can.
6. Eat plain, wholesome food, and lots of it.

If these rules are followed, he promises the gradual, but sure development of health and strength.

Piles.

This is another very common complaint, and one which causes great distress. It consists in a fullness of blood, and languid circulation in the lower part of the bowel or rectum. In consequence of this congestion, either the veins of the intestine become enlarged or varicose, or the blood gets infiltrated into the cells beneath

the mucous membrane, and collects so as to form bloody tumors. These tumors, which are seldom absent, are the leading feature of the piles. Sometimes they appear externally, around the anus; this is external piles. At other times they are within the bowel; the complaint is then called internal piles. When the blood is discharged, they are called bleeding piles; and when not, blind piles.

Symptoms.—Usually there is a sense of weight and weakness in the lower part of the back and loins, with a painful itching about the anus. On the going to stool, there is a burning, cutting pain experienced, which is followed by bearing down and tenesmus. If it be bleeding piles, the little tumors will bleed at every motion of the bowels. There are often disagreeable sensations in the head, and an irritable state of mind, and a sense of fullness and anxiety in the stomach. The disease is caused by habitual constipation, sitting a great deal, riding much on horseback, high-seasoned food, over-exertion, and induration of the liver. It is also very common in pregnancy from several causes.

Treatment.—Medicines—purges in particular—must not be taken. The constipation may be corrected as before mentioned; or if it is necessary to give something to move the bowels, let it be this: confection of senna, two ounces; cream of tartar, one ounce; flowers of sulphur, one ounce; syrup of ginger, enough to make a stiff paste. Mix. A piece as large as a nutmeg is to be taken as often as necessary to keep the bowels open. A soothing ointment, made of two ounces of lard, and one drachm of sulphur, and rubbed between two plates of lead until it is well blackened, is excellent for an application to the parts. Frequent injections of cool water will do as much as anything to allay the in-

flammation. Steaming the parts over a hot decoction of hops, or stramonium, will frequently give relief. The diet must be cooling and loosening.

Black Pepper Confection.

Take of black pepper and elecampane root, each one ounce; fennel seeds, three ounces; honey and sugar, of each two ounces. Rub the dry ingredients to a fine powder, and when the confection is wanted, add the honey, and mix well. Dose, from one to two drachms. Use in hæmorrhoids, or piles.

Pimples—Dry.

Dry pimples, under the several names of red gum, tooth rash, as seen in children, and lichen and prurigo in adults, are exceedingly troublesome, and if much scratched and torn, may form painful sores. Prurigo often causes elderly people a great deal of suffering, giving them no rest day or night, from the tormenting sensation of numberless ants crawling upon the skin, or red-hot needles piercing it.

Treatment.—Careful diet, and gentle cathartics, or tonics, according to the condition of the system. Externally, cold, salt-water sponge-bath, and glycerine, applied with a soft sponge; vinegar and water, or creosote ointment. If the itching affects some very sensitive parts, a wash of rose-water, four ounces; pulverized borax, half an ounce; sulphate of morphine, six grains, should be used many times a day.

Pleurisy, or Pleuritis.

Pleurisy, or pleuritis, is a term given to that inflamed condition of the pleura which causes roughening of its surface, and, in consequence of the friction which is induced, intense pain becomes a prominent symptom of the disease. It is rarely, however, that the pleura is affected without disease in the neighboring portion of the lung

being also present, when pleuropneumonia is said to exist. It is always attended with a short, dry cough in its first stage, but afterwards the cough is accompanied by a rusty-colored expectoration, and there is, invariably, considerable fever accompanied by a high temperature. Nothing seems to give relief to pleurisy so rapidly as the prompt application of leeches over the part affected. If, however, the disease has existed for a day or two, a fly-blister should be applied over the seat of disease. When the temperature is high, phenacetine in five-grain doses should be administered every four hours until this is reduced, while the bodily strength should be well maintained by a copious supply of milk diet in the form of arrowroot, sago, or tapioca gruels. For the intense pain, one grain of opium with one grain of calomel may be administered at intervals of three or four hours.

Pneumonia.

Pneumonia, or inflammation of the lungs, is, doubtless, a disease due to the invasion of a specific germ. Of course this germ cannot develop its virulence in a healthy subject; the health of the individual must be, first of all, so far deteriorated as to permit its making a soil for its development and propagation within the lungs. Pneumonia is invariably accompanied by very high fever, rapid breathing, lividity of the countenance, and a hacking cough, which, in a day or two, is accompanied by an expectoration most viscid in character, and having more or less of a rusty-colored appearance. On percussion, the chest over the seat of the disease is invariably dull, and if the stethoscope be placed over the dull area, a fine crepitation or crackling sound will be audible, this, as time goes on, becomes more and more of a crackling and afterwards

of a bubbling nature. The great point in the treatment of pneumonia is to keep the temperature low, and this can best be accomplished by giving phenacetine in three-grain doses for an adult every four hours, while considerable benefit may also be derived by the application of a fly-blister over the seat of inflammation. At the same time, the vital powers must be thoroughly sustained by an abundance of nutritious food, and careful attention should be given to the bowels. The patient should be kept in a well-ventilated room, the air of which may be kept warm if the cough is very persistent. The old method of treating pneumonia by opium and calomel is, however, not to be ignored, as the calomel would appear to act powerfully as an antiseptic and alterative, while the opium soothes the pain which almost invariably accompanies pneumonia, in consequence of the pleura in the neighborhood being also in a state of inflammatory action.

Poisons—Effects of.

A poison is a substance which is capable of altering or destroying some or all of the functions necessary to life. When a person is in good health, and is suddenly attacked, after having taken some food or drink, with violent pain, cramp in the stomach, feeling of sickness or nausea, vomiting, convulsive twitchings, and a sense of suffocation; or if he be seized, under the same circumstances, with giddiness, delirium, or unusual sleepiness, it may be supposed that he has been poisoned.

Poisons—Classified.

Poisons have been divided into four classes:

Those causing local symptoms;

Those producing spasmodic symptoms;

Narcotic or sleepy symptoms; and

Paralytic symptoms. Poisons may be mineral, animal, or vegetable.

Hints in Cases of Poisoning.

Always send immediately for a medical man.

Save all fluids vomited, and articles of food, cups, glasses, etc., used by the patient before being taken ill, and lock them up.

Examine the cups to guide you in your treatment: that is, smell them, and look at them.

Poisons—General Antidotes and Rules to be Observed.

The first thing to be done, when a person has swallowed a poison of any kind, is to empty the stomach, by taking a teaspoonful of common salt and the same quantity of ground mustard, stirred rapidly into a teacup of water, warm or cold, and swallowed instantly. Next give water to drink, cold or warm, as fast as possible, a gallon or more at a time, and as fast as vomited drink more; tepid water is best, as it opens the pores of the skin, and thus gives the speediest vent to the poisonous article. If pains begin to be felt in the bowels, it shows that part at least of the poison has passed downwards; then large and repeated injections of tepid water should be given, the object in both cases being to dilute the poison as quickly and as largely as possible. Do not wait for warm water—take that which is nearest at hand, cold or warm, for every second of time saved is of immense importance. It has been found that there is hardly any poison which, being diluted in a sufficient quantity with water, may not prove inoffensive. This virtue, coupled with its universal availability, makes it a valuable remedial agent in poisoning.

POISONS, SPECIAL, AND THEIR ANTIDOTES.

The following are some of the more common articles of poison by which human life is endangered or destroyed, either by accident or design, together with the symptoms attending their use, and the articles and measures which may be used to destroy their effects and save life.

NAME OF POISON.	SYMPTOMS.	TREATMENT.
ALCOHOL.	Confusion of thought; inability to walk or stand; dizziness; stupor; highly flushed or pale face; noisy breathing.	Excite vomiting by large draughts of warm water, by tickling the throat, and by emetics; use stomach pump; pour cold water on the head and back of the neck; keep up motion; whip the skin, palms of the hands and soles of the feet, with small cords or rods; give strong stimulants, as ammonia.
AMMONIA.	Strong acid and burning taste in the mouth; heat in the throat and stomach; nausea; vomiting; great prostration; cold, clammy skin; small, frequent pulse.	Antidote, vinegar and water, or any dilute vegetable acid; excite vomiting; give mucilages, emetics, cathartics, clysters, opiates.
AQUA FORTIS, OR NITRIC ACID.	Lips, mouth and throat of yellow color; pain, burning and strangulation in swallowing; retching; vomiting of dark-colored fluids, with shreds of mucous membrane; swelling of the throat; difficulty of swallowing and of breathing, skin cold and clammy; pulse quick and small.	Calcined magnesia, carbonate of magnesia, chalk or whiting in water; soap and water; ashes and water, milk; white of eggs; oil and mucilages. Perhaps use a stomach pump. If suffocation is threatened, open the windpipe.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
ARSENIC.	Sickness; fainting; burning pain in the stomach; vomiting; excessive thirst; dryness; heat and tightness of the throat; diarrhoea; slow and intermitting pulse; palsy; lethargy; insensibility; convulsions, etc.	Hydrated sesqui-oxide of iron; emetics of 3 to 5 grs. of sulphate of copper; 10 to 15 grs. sulphate of zinc; ipecac; mustard seed; tickle the throat with the finger or a feather; white of eggs; milk; gruel; flaxseed tea; warm water largely; oil and limewater; calcined magnesia.
BISMUTH.	Metallic taste in the mouth, heat and dryness of the throat; severe burning heat in the stomach and bowels; violent vomiting, sometimes of bloody matter; profuse diarrhoea; pulse small, frequent and irregular; skin cold and clammy; respiration difficult; fainting; convulsions, etc.	Large potions of milk, white of eggs, oil; promote vomiting by large draughts of sickening drinks, and by tickling the throat with the finger or a feather; use stomach pump.
BLISTERING FLIES.	Burning in the throat and difficulty in swallowing; violent pains in the stomach and bowels; nausea; vomiting of bloody mucus; pain in the loins; desire to void urine, and passage of bloody water, with great pain.	Emetics; copious draughts of warm water, milk, mucilaginous drinks; tickling the throat with the finger or a feather.
BLUE VITRIOL. (Sulphate of Copper— Verdigris.)	Strong metallic taste in the mouth; belching, violent vomiting and purging; griping pains; cramps in the thighs and legs; frothing at the mouth; headache, giddiness, convulsions, insensibility, etc.	Early vomiting by large draughts of warm water and by tickling the throat; strong coffee, milk, white of eggs, wheat flour and water, mucilages; stomach pump.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
CARBOLIC ACID.		The best antidote for carbolic acid, after the stomach pump, is large doses of olive or almond oil, with a little castor oil.
CARBONIC ACID GAS. Found in wells, cellars, mines, etc., and largely given off in the burning of charcoal in close rooms.	Drowsiness, difficulty of respiration, suffocation; face swelled and more or less discolored; sensation of great weight in the head; vertigo, loss of muscular power, and insensibility.	Admission of fresh air; friction, especially over the lungs; artificial respiration, by inflating the lungs by the mouth or bellows; application of strong stimulants to the mouth or nose; cold water poured upon the head and back of the neck. If the body be cold, a warm bath.
COBALT. Of importance from its extensive use as fly-poison, children having eaten it and thereby been poisoned.	Heat and pain in the throat and stomach; violent retching and vomiting, cold and clammy skin; small and frequent pulse; respiration hurried, anxious and difficult; diarrhœa, etc.	Give freely milk, white of eggs, wheat flour and water, nauseating teas, mucilages, emetics and clysters.
CORROSIVE SUBLIMATE. Carelessly made use of in many families as a bed-bug poison.	Strong metallic or coppery taste in the mouth; burning heat and constriction of the throat; severe pain in the stomach and bowels; violent vomiting and purging; countenance swollen and flushed or anxious and pale; pulse small, frequent and irregular; skin cold and clammy; tongue white and shriveled; respiration difficult; fainting, convulsions and insensibility.	Albumen, which is contained in the whites of eggs, abundantly; wheat flour in water; liquid starch, milk, iron filings; excite vomiting early by large draughts of warm water; mustard seed, tickling the throat, and emetics; use stomach pump.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
<p>DEADLY NIGHT-SHADE; or, BELLADONNA.</p> <p>Children are sometimes poisoned by eating the berries, which have a sweetish taste.</p>	<p>Dryness and stricture of the throat; nausea, vertigo, dilated pupils, dimness of sight, laughter, delirium; redness and swelling of the face; convulsions, general paralysis, and insensibility.</p>	<p>Emetics of sulphate of zinc (10 to 15 grs.), or copper (3 to 5 grs.); large purgatives and clysters; take vinegar and water, or other vegetable acids, freely; bitter infusions; lime-water; stomach pump; cold water poured on the head, and strong stimulants.</p>
<p>FOOL'S PARSLEY.</p> <p>Taken by mistake for common parsley.</p>	<p>Heat of throat and thirst; oppression at the stomach; nausea, vomiting, and occasionally purging; cold and moist skin; small and frequent pulse; headache, vertigo and delirium.</p>	<p>Emetics of zinc or copper; warm water; milk; flaxseed or chamomile tea; purgatives, clysters; warm bath, stimulants and opiates.</p>
<p>FOXGLOVE; or DIGITALIS.</p>	<p>Intermitting pulse; vertigo, indistinct vision, nausea, vomiting, hic-cough, cold sweats, delirium, syncope and convulsions.</p>	<p>Emetics, followed by strong stimulants, (brandy, ether, ammonia), opiates, counter-irritation, mustard-seed poultices, or blisters to the pit of the stomach; cold affusions.</p>
<p>FUNGUSES</p> <p>Or poisonous mushrooms (fungi), taken by mistake for eatable mushrooms.</p>	<p>Pain in the stomach; nausea, vomiting and purging; great thirst, colic pains, cramp, convulsions, vertigo, delirium.</p>	<p>Emetics, purgatives, mucilages, acid drinks, stimulants (ether, brandy, ammonia), opiates, bit- ters.</p>
<p>HELLEBORE.</p> <p>Sometimes used in a poisonous quantity as a dressing for a sore.</p>	<p>Violent vomiting and purging; bloody stools; great anxiety; tremors, vertigo, fainting, sinking of the pulse, cold sweats, and convulsions.</p>	<p>Excite speedy vomiting by large draughts of warm water, molasses and water, tickling the throat with the finger or a feather, and emetics; give oily and mucilaginous drinks, oily purgatives and clysters, acids, strong coffee, camphor and opium.</p>

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
HEMLOCK.	Dimness of sight, delirium, swelling of the abdomen, with pain, vomiting and purging.	Emetics of sulphate of zinc or copper, assisted by copious draughts of warm water, milk, flax-seed tea, chamomile, etc.; stomach pump; pouring cold water on the head and back; stimulants and acids.
HENBANE.	Appearance of intoxication; sickness, stupor, dimness of sight, delirium, great dilatation of the pupils insensibility.	Emetics, with strong stimulants, as sulphate of zinc or copper, tartar emetic or ipecac, with mustard seed or Cayenne, acid drinks, ammonia, brandy, ether, strong coffee, cold affusion; stomach pump and stimulating the skin.
LIME.	Heat in throat and stomach, nausea, vomiting, pain in the stomach, violent colic pains, diarrhoea, sometimes constipation.	Vinegar, lemon-juice, or any vegetable acid, freely; demulcent drinks, opiates, warm bath, etc.
LUNAR CAUSTIC. (Nitrate of Silver).	Burning pain in the stomach, nausea, retching, vomiting; sometimes extreme purging; cold and clammy skin; small, frequent, and irregular pulse; respiration difficult; fainting, convulsions.	Common salt in solution abundantly; warm water; irritation to the throat; emetics, warm bath, purgatives, opiates.
MEADOW SAFFRON.	Nausea, vomiting, pain in the stomach, griping pains in the bowels, with violent purging; cold sweats; small, frequent, and irregular pulse.	Excite vomiting (if not already free enough) by the use of nauseating drinks, tickling the throat, and emetics; mucilages, opiates, with stimulants.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
MONK'S HOOD. (See Opium.)	Nausea, violent vomiting and purging; vertigo, cold sweats, delirium, convulsions.	Excite vomiting (if not already free enough) by emetics, large quantities of warm water, molasses and water, milk, flaxseed and chamomile teas, etc.; acid drinks; stimulants, brandy, ether, ammonia; opiates.
MOUNTAIN LAUREL. Of great importance, as honey made from its flowers is poisonous, and birds which feed upon its buds in winter are likewise poisonous.	Giddiness, violent flushings of heat and cold, sickness at the stomach, with repeated vomiting and purging; delirium; frequent and weak pulse, extreme debility, profuse perspiration, convulsions, etc.	Emetics, mucilaginous and nauseating drinks, warm water, or molasses and water, tickling the throat, purgatives, clysters, strong stimulants, ammonia, coffee, cold affusion, stomach pump.
MURIATIC ACID.	Extreme irritation; burning and sense of strangulation in swallowing; discharge of shreds of mucous membrane; swelling of the throat; difficulty of swallowing and breathing; skin cold and covered with clammy sweat; pulse dull and small; lining membrane of the mouth and throat partially destroyed.	Carbonate of magnesia, calcined magnesia, chalk, or whiting in water; soap and water; ashes and water, white of eggs, milk, oil, etc. Plaster from the wall may be beaten down to a paste with water, and given; carbonate of soda, with barley-water, slippery elm. If suffocation is threatened, open the windpipe.
MURIATE OF BARYTES.	Pain, burning, weight in the stomach; vertigo, dimness of vision, ringing in the ears, pain in the head, throbbing in the temples, paralysis, convulsions.	Epsom or Glauber's salts in solution, emetics, large draughts of warm water, tickling the throat, flaxseed tea, stomach pump; opiates in large doses.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
MURIATE OF TIN.	Strong metallic (coppery) taste; sense of tightness in the throat, difficult respiration, violent vomiting, with cramp in the stomach; severe colic pains, with purging; cold clammy skin; small, frequent pulse; paralysis, convulsions.	Milk, largely administered; emetics, large draughts of warm water, tickling the throat, hot cloths to the stomach and bowels, soothing and opiate clysters.
NITRE. Sometimes taken by mistake for some other salt.	Intense pain in the stomach, nausea, vomiting, profuse purging, bloody stools, severe colic pains in the lower part of the bowels, difficult breathing, great prostration, fainting, convulsions.	Flaxseed tea, barley-water, molasses and water, tickling the throat, emetics, opiates, stimulants, brandy, ether, etc.
NUX VOMICA OR STRYCHNIA.	An extremely persistent bitter taste in the mouth, muscular spasms, great rigidity, limbs fixed and stretched out, jaws spasmodically shut, drowsiness. If the symptoms are prolonged, nausea, vomiting, difficulty of respiration, asphyxia.	The Cannabis India (a variety of the hemp plant) has been recommended as an antidote; emetics, to produce immediate vomiting; stomach pump; vinegar, and other vegetable acids in water.
OIL OF CEDAR.	Heat in the stomach, followed immediately by convulsions, with frothing at the mouth; pulsation ceases early. The body is warm a long time after death.	Vomiting to be excited as early as possible by large draughts of warm water and other nauseating drinks, by ground mustard seed, and tickling the throat; use the stomach pump as early as possible.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
OIL OF RUE.	Dryness of mouth and throat, thirst, heat and pain in the stomach and bowels, headache and delirium.	Vomiting to be excited as quickly as possible by large draughts of warm water, and other nauseating drinks, by ground mustard seed, tickling the throat, emetics; acids: stomach pump.
OIL OF SAVIN.	Headache, strong general excitement, delirium, acute pain in the stomach and bowels, nausea, vomiting, purging and convulsions.	Vomiting to be excited by copious draughts of warm water, mustard seed, tickling the throat, and emetics of sulphate of zinc or copper; acid drinks, mucilages; stomach pump.
OIL OF TANSY.	Heat in the stomach, followed immediately by convulsions, and frothing at the mouth; pulsation feeble, and soon lost.	Vomiting to be instantly excited by copious draughts of warm water, and other nauseating drinks, mustard seed, tickling the throat, sulphate of zinc or copper; acid drinks, mucilages; stomach pump.
OIL OF VITRIOL.	Extreme irritation, pain, burning, and sense of strangulation in swallowing; retching, vomiting, discharge of dark-colored fluids and shreds of membrane from the stomach; swelling of the throat; difficulty of swallowing and breathing; cold, clammy skin; quick and small pulse. The lining membrane of the mouth and throat is partially destroyed, and is of a white color.	Carbonate of magnesia, chalk or whiting, mixed with water, soap, or ashes and water; lime from the plastered wall, beat into a paste with water, white of eggs, milk, oil; perhaps the stomach pump, but with great care. If suffocation is threatened, open the windpipe.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
OIL OF TAR.	Speedy insensibility; laborious, rattling breathing; coldness of the extremities; contraction of the pupils; suffusion of the eye; feeble pulse.	Vomiting to be instantly excited by copious draughts of warm water, etc.
OPIUM.	Giddiness, drowsiness, insensibility, stupor; pulse at first quick and irregular, and breathing hurried, afterwards breathing is slow and noisy, and the pulse slow and full. In favorable cases there are early nausea and vomiting.	Excite instant vomiting by mustard seed, copious draughts of warm water, and tickling the throat; give sulphate of zinc (10 to 15 grs.) or copper (3 to 5); use the stomach pump early. Give strong stimulants, ether, brandy, ammonia, strong coffee and tea. Pour cold water on the head and back of the neck, and whip the skin, the palms of the hands, and soles of the feet with small cords or rods.
PHOSPHORUS.	Hot taste of garlic or onions in the mouth, violent pains in the stomach, nausea and vomiting, followed by great excitement of the arterial vessels; convulsions.	Fill up the stomach with magnesia and water; give emetics and nauseating drinks to keep up the vomiting.
OXALIC ACID. Generally taken accidentally from its resemblance to Epsom salts.	Hot, burning taste in swallowing; immediate and constant vomiting, the matter thrown up being of a greenish or brownish color, and extremely acid; sometimes severe pain; collapse; pulse small, irregular, and scarcely perceptible; numbness and spasms.	Carbonate of magnesia, calcined magnesia, chalk or whiting, made into a cream with water, and administered freely; lime-water with oil; emetics, mucilages; stomach pump.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
POTASH.	Strong acid taste in the mouth; burning heat in the throat and stomach; sometimes vomiting and purging, with colic pains; cold, clammy skin; small, frequent pulse.	Vegetable acids, vinegar, lemon-juice, or tartaric acid in water; emetics, clysters, opiates.
PRUSSIC ACID.	Instant sensation of weight and pain in the head; nausea, quick pulse. In large doses, instant insensibility, stupor, convulsions; loss of pulsation; very slow and convulsive breathing.	Application of strong ammonia to the nostrils, and stimulating liniments to the chest; cold water poured upon the head and spine; chlorine gas; a dilute solution of chloride of soda or lime.
POISON IVY.	A running vine which is found covering walls, shrubs, trees and in meadows. This plant, by contact, and upon many without contact, produces violent erysipelatous inflammation, particularly with the face and hands. The symptoms are itching, redness, burning, swelling watery blisters, and subsequent peeling of the skin. These effects are experienced soon after exposure, and usually begin to decline within a week.	Bathe the parts freely with spirits of nitre. If the blisters be broken, so as to allow the nitre to penetrate the cuticle, more than a single application will rarely be necessary. Another remedy is to take a handful of quick-lime, dissolve it in water, let it stand half an hour, and then paint the poisoned parts with it. Three or four applications will generally cure. Another is to bathe the affected parts well with sweet (or olive) oil, taking internally two tablespoonfuls three times a day. Anointing the face and hands with sweet oil will prevent poisoning by the ivy.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
POISON DOGWOOD. A small, but beautiful shrub or tree, from ten to fifteen feet high, having a dark gray bark, its smaller branches of a lighter color, and its extreme twigs red.	-Its effects are similar to those of Poison Ivy, but more powerful. The poisonous principle is most energetic during the burning of the wood.	Treatment the same as for the ivy.
SUGAR OF LEAD OR WHITE LEAD.	A burning, prickling sensation in the throat, with dryness and thirst; uneasiness at the pit of the stomach; nausea, vomiting, colic pains, constipation of the bowels, cold skin, feeble and irregular pulse, great prostration of the strength, cramps, numbness, paralysis, giddiness, torpor, insensibility.	Epsom or Glauber salts (sulphates of magnesia and soda), mucilages, milk, white of eggs, wheat flour with water, enetics, stomach pump.
TARTAR EMETIC.	Nausea, severe vomiting, hiccough, burning heat and pain in the stomach, colic pains, violent purging, small, frequent and hard pulse; cramps, vertigo, fainting, and great prostration.	Tea made of oak bark or Peruvian bark, strong green tea, mucilages, warm drinks, opium, opiate clysters.
TOBACCO.	Severe nausea, vomiting, headache, sudden sinking of the strength, cold sweats, convulsions.	Emetics, copious draughts of warm water, tickling the throat with the finger or feather, purgatives, acid drinks, stimulants, brandy, camphor, etc.
THORN APPLE OR STRAMONIUM.	Vertigo, delirium, stupor, convulsions, paralysis, cold sweats, feeble and irregular pulse.	Emetics of sulphate of zinc or copper, mustard seed, tickling the throat, stomach pump.

Poisons, Special, and their Antidotes. (Continued)

NAME OF POISON.	SYMPTOMS.	TREATMENT.
WHITE VITRIOL OR SULPHATE OF ZINC.	Bitter taste in the mouth, with sensation of choking; nausea, and severe vomiting; pain in the stomach and bowels; purging, difficult breathing, quick and small pulse, coldness of the extremities.	Albumen, white of eggs, wheat flour and water, milk abundantly, infusions of tea, oak bark, etc., emetics, purgatives, and opiate clysters.

Poisonous Drugs—Labels for.

Very many cases of accidental poisoning would be prevented if druggists would print labels that would not only give the name of the poison and the dose, but would also give the antidote. A transcript for such a label might be as follows:

LAUDANUM—POISON.

“Dose.—For an adult, from twenty to forty drops. Should not be given to children except in very small doses.

Antidote.—In case of accident, use active stimulants. Coffee, tea, brandy and ammonia.”

Pomatus—To Make.

The lard, fat, suet, or marrow used must be carefully prepared by being melted with as gentle a heat as possible, skimmed, strained, and cleared from the dregs which are deposited on standing.

Ordinary Pomatum.—Mutton suet, prepared as above, one pound; lard, three pounds; carefully melted together, and stirred constantly as it cools, two ounces of bergamot being added.

Hard Pomatum.—Lard and mutton suet carefully prepared, of each one pound; white wax, four ounces; essence of bergamot, one ounce.

Pomade—Castor Oil.

Castor oil, four ounces; prepared lard, two ounces; white wax, two drachms; bergamot, two drachms; oil of lavender, twenty drops. Melt the fat together, and on cooling add the scents, and stir till cold.

Proud Flesh—To Remove.

Pulverize loaf-sugar very fine, and apply it to the part affected. This is a new and easy remedy, and is said to remove it entirely without pain.

Pulse.

Pulse is that sensation which is imparted by the waves of blood passing through the arteries, and indicates each beat of the heart, the condition of the circulation, and the strength of the individual. A regular, steady pulse, which is not easily obliterated by pressure, indicates a good condition of the general health, whereas if the pulse beat intermits, this fact usually points to some faulty action of the heart. Rapidity of the pulse may indicate either a high state of fever or a condition of nervous excitement. When fever is present and the pulse is rapid it is generally full, and round, and easily compressed. The average pulse in a healthy man in the prime of life may be estimated as beating 72

times in a minute, but though this is the average there are many deviations, and even in the same individual the pulse varies greatly according to the time of day it is taken, and the condition of his nervous system at the time. A quick pulse is never an indication of health, although some people appear to be fairly well with the pulse ranging from 80 to 90; in others the pulse may appear to be exceedingly slow, and may not exceed 40 beats in the minute, and yet apparently fair health is enjoyed.

The following is a table drawn up by M. Quetelet:—

Age.	Average of Pulsations per minute.
Birth.	136
5 years	88
10-15	78
15-20.	69
25-30.	71
30-50.	70

The most convenient part of the body for feeling the pulse is the wrist, where the radial artery lies upon the bone and is very superficial. In affection of the brain, causing great depression, the pulse is usually slow, whereas in peritonitis it is very rapid and thready in character.

Purgatives.

Purgatives are those medicinal substances which excite and accelerate the movements of the alimentary canal, and increase the discharges from it. Purgatives are divided into simple laxatives and drastic purgatives. A laxative effect may be produced by certain articles of diet, such as brown bread, porridge, uncooked foods, or even by drinking cold water before breakfast. These are generally described as dietetic laxatives, and act, more or less, by the mechanical irritation which they produce upon the mucous lining of the bowel. Injections also act as laxatives by washing

out the bowel, and are most useful in the treatment of a sluggish condition of the colon. Their more general use would add very much to the comfort of those troubled with constipation or an inefficient action of the colon. Among the more gentle laxatives may be included—olive oil, almond oil, extract of malt, phosphate of soda, hyposulphite of soda, cream of tartar, prunes, sulphur, and tamarinds. Those having a more energetic effect are—aloës, cascara sagrada, podophyllin, Epsom salts, Glauber salts, jalap, calomel, grey powder, blue pill, rhubarb, senna, and magnesia, where there is an acid condition of the stomach; while those having a more drastic effect are substances such as colocynth, scammony, gamboge, etc. The great point to observe in taking purgatives is to ascertain what is the direct cause of constipation. It may be due to errors of diet, want of exercise, indigestion, or habitual neglect of the calls of nature, when of course the lower bowel becomes distended and semi-paralyzed, in consequence of the accumulations which have existed so long within its canal, because the parts have got stretched and unable to act by unaided efforts. If the laws of nature were properly attended to purgatives would be rarely called for, but when they are necessary it is important that they should be employed without hesitation, as many evil consequences arise from constipation, and predisposition to disease is induced by accumulations within the intestine, while the absorption of fœtid fluids naturally arises therefrom.

Pus.

Pus is the discharge which is found in abscesses, upon granulating surfaces, open wounds and ulcers. It varies very much in character, but in every instance it is the result of decomposition. At one time pus was thought

to be essential to the act of healing; now, however, it is always considered an unnecessary evil, as its presence can always be avoided by the judicious and careful employment of antiseptics, except of course in the formation of abscesses which are beyond the control of the surgeon until they have actually formed; yet, by prompt interference, these abscesses can be frequently aborted or prevented from extending in their dimensions. The formation of pus is due to the action of certain minute organisms which prey upon the secretion of the membrane, granulations, or other part which has been weakened either by disease or injury, and thus rendered an easy prey to these microbes.

Quinsy, or Tonsilitis

Which has gone on to suppuration, is one of the most painful affections that can possibly attack the throat. It is closely associated with rheumatism, and, as a rule, only develops in rheumatic subjects. The author has found it frequently to precede an attack of rheumatic fever. When the inflammation of quinsy has proceeded to a certain extent, it is liable to give rise to an abscess within the tonsil, which is accompanied by considerable fever and excruciating pain, especially when any attempt is being made to swallow. Quinsy rarely attacks an individual who is in good health, but, as a rule, is indicative of a lowered state of the general system, which is accompanied by constipation, a highly acid condition of the urine, and a rheumatic condition of the blood. When tonsilitis appears it is well to suspect that quinsy may be in the background, and with a view to prevent its occurrence the following mixture should always be in readiness, and should be taken every two hours when the least indication of inflammation of the tonsils is present:—Chlorate of potash and salicin, of each two and

one-half drachms; guaiacum mixture, six ounces—mix, and take a dessert-spoonful every two hours.

Rheumatism

May be said to be composed of two varieties, viz., the acute and the chronic. The direct cause of rheumatism is the acid condition of the blood, the acid contained being uric. It is invariably associated with constipation and dyspepsia of the acid type. Certain individuals are more prone to this disease than others; but the author's conviction is, that even an individual who has a hereditary tendency to this disease may escape it altogether if he pay sufficient attention to the daily evacuation of the bowels. There is hardly a tissue of the body that may not be affected by rheumatism. The acute variety, however, invariably attacks the joints, and serous membrane, such as the pericardium, pleura, peritoneum, as well as those of the joints. It is characterized by a very high fever, a thickly furred tongue, and excruciating pain on the least movement of the parts affected. It is not unfrequently preceded by an attack of tonsilitis, or quinsy, which may proceed to suppuration. This, however, only goes to prove that these diseases are of a rheumatic nature, and owe their origin to the same poison which develops the disease in other parts of the body. Acute rheumatism, however, nowadays, has been robbed very much of its painful symptoms and duration. This has been due to the discovery of the fact that constipation always has a great deal to do with the development and continuance of the disease, and also that salicin has a powerful influence over it, this influence being probably due entirely to the fact that salicine is an antiseptic, and has the power of destroying the virus that gives rise to the chemical change which takes place within the blood. Chronic rheu-

matism, although not excessively painful, and not productive of the feverish symptoms which the acute variety gives rise to, is a disease which entails much suffering and distress. Both of these varieties may be very much relieved by applying to the parts agents that have a soothing effect upon the nerves surrounding the affected areas. Among these agents may be mentioned carbolic acid in solution, menthol, chloroform, belladonna, opium, etc. In every instance, however, the chief object of those who are in attendance upon the patient should be, to ensure the daily and free evacuation of the bowels, to regulate the diet so as to promote digestion to its fullest extent, and to keep the patient clothed in flannel. Salicin may be given according to age, in from 5 to 20-grain doses every two hours, in the acute form of the disease, and it will also be found beneficial in the chronic variety. If the disease attacks the throat and quinsy is threatening, the following mixture will generally prove most efficacious in arresting its progress:—Salicin and chlorate of potash, of each $2\frac{1}{2}$ drachms; mixture of guaiacum, 6 ounces—to be mixed, and a dessert-spoonful taken every two hours. It should always be remembered that rheumatism may attack portions of the human body which may appear to be unlikely places for it to locate itself, such as the eye, the mucous membranes, the ovaries, etc. People affected in this manner are generally exceedingly susceptible to the influences of cold, and from this fact alone a rheumatic condition of the system may be recognized. Thickening of the joints is frequently the result of a rheumatic state of the system, and what is often designated as rheumatic gout is neither more or less than chronic rheumatism.

* At the same time we must not overlook

the fact that gout is very closely related to rheumatism, and is simply a phase of this disease. A chronic congested condition of the throat is almost always of rheumatic origin, and it will be found that people suffering from this painful affection will procure great relief by taking salicin, or the salicin and guaiacum mixture which is mentioned above. It is a well-known fact that individuals of a rheumatic temperament are very sensitive to changes of temperature and climate; therefore, a dry, equable climate is to be preferred for those who suffer from this disease. Many medicinal springs have been found most useful in the treatment of this disease, and in consequence of their curative properties have become historical as health resorts.

Rheumatism—Alterative for.

Colchicum seed and black cohosh root, of each half an oz., the root to be bruised; best rye whiskey, 1 pint; put it together, and let it stand for three or four days. Dose—From one teaspoonful to a tablespoonful 3 times daily before meals.

Rheumatism—Liniment for.

Olive oil, spirits of camphor, and chloroform, of each 2 ounces; sassafras oil 1 teaspoonful. First add the oil of sassafras to the olive oil, then the spirits of camphor, and shake well before putting in the chloroform, shaking when used, keeping it corked, as the chloroform evaporates very fast if it is left open. Apply 3 or 4 times daily, rubbing it well, and always toward the body.

Rheumatism—Other Remedies for.

It is well to bathe the parts affected with water in which potatoes have been boiled, as hot as can be borne, just before going to bed; by the next morning the pain will be relieved, if not removed. One application of this

simple remedy has cured the most obstinate of rheumatic pains.

Another.— $\frac{1}{2}$ ounce pulverized salt-petre put in half a pint of sweet oil; bathe the parts affected, and a sound cure will be speedily effected.

Rheumatism has frequently been cured by a persistent use of lemon-juice, either undiluted or in the form of lemonade. Suck half a lemon every morning before breakfast, and occasionally during the day, and partake of lemonade when thirsty in preference to any other drink. If severely afflicted, a physician should be consulted; but in all cases, lemon-juice will hasten the cure.

Another.—By the Valerian bath, made simply by taking one pound of valerian root, boiling it gently for about a quarter of an hour in one gallon of water, straining and adding the strained liquid to about twenty gallons of water in an ordinary bath. The temperature should be about 98 deg., and the time of immersion from twenty minutes to half an hour. Pains must be taken to dry the patient perfectly upon getting out of the bath. If the inflammation remain refractory in any of the joints, linseed meal poultices should be made with a strong decoction of valerian root, and applied.

Rheumatism—Ointment for.

Add one ounce of strong liquid ammonia to two ounces of olive oil; shake well together until properly mixed. Use as a stimulant in rheumatic pains, paralytic numbness, chronic glandular enlargements, lumbago, sciatica, and in bronchitis, etc. Note that this embrocation must be used with care, and only employed in very obstinate cases.

Compound Ammoniated Ointment.—Add six drachms of oil of turpentine to the strong ammoniated liniment

above. Use for the diseases mentioned in the preceding paragraph, and chronic affections of the knee and ankle joints.

Ringworm.

Ring worm is due to the presence of a fungus which locates itself within the hair follicles of the skin, and by the development of its progeny there spreads sometimes over a considerable area. It rarely attacks the hair of adults, but in children it frequently produces disastrous results, and is a disease always difficult of eradication. It radiates from a center—hence the origin of its name—and in its progress it destroys the hair, or rather it destroys the power of the hair bulbs to develop new hair. The proper method to treat it, if recognized in its very earliest stages, is to apply some powerful parasiticide, such as acetic acid, carbolic acid in solution, or strong mercurial ointment. Before applying any of these substances, however, it is necessary to wash away from the surface which is invaded all greasy matter, by means of carbolic soap. Another remedy which has been advocated for this affection is turpentine, frequently applied to the part. When the disease attacks the beard, whiskers, or moustache of an adult, it is then very much more difficult to eradicate, and in these circumstances it is absolutely necessary that every hair be pulled out by the root, and an ointment composed of one part of oleate of mercury ointment, one part of the oleate of zinc ointment to which has been added one-eighth part of aristol, be applied. This ointment should be well rubbed into the affected part night and morning, and continued for a considerable period after all traces of the disease appear to have disappeared. At the same time the health of the individual

should be strengthened by the administration of cod-liver oil, together with an abundance of nourishment. There can be little doubt, although it has not been tried on a very large scale, that the application of pure chloroform repeated at frequent intervals would have a most beneficial effect upon this disease. The author, however, has found that it has proved very efficacious in this loathsome affection.

Ringworm—Other Remedies for.

Take yellow dock root; cut in small pieces, and simmer them in vinegar, and when the strength is extracted, strain off the vinegar, which apply to the part affected at least three times a day. At the same time, it is well to drink a tea made of the same root; or take some of the extract of yellow-dock root, which can be found at any drug store.

Another.—The head to be washed twice a day with soft soap and warm soft water; when dried, the places to be rubbed with a piece of linen rag dipped in ammonia from gas tar.

Another.—Take the back of a silver watch or any smooth piece of silver, rub on and around the sore a few minutes four to six times; it will soon cure it.

Rising—Early.

Dr. Wilson Philip in his Treatise on Indigestion says: "Although it is of consequence to the debilitated to go early to bed, there are few things more hurtful to them than remaining in it too long. Getting up an hour or two earlier often gives a degree of vigor which nothing else can procure. For those who are not much debilitated, and sleep well, the best rule is to get out of bed soon after waking in the morning. This at first may appear too early, for the debilitated

require more sleep than the healthy; but rising early will gradually prolong the sleep on the succeeding night, till the quantity the patient enjoys is equal to his demand for it. Lying late is not only hurtful, by the relaxation it occasions, but also by occupying that part of the day at which exercise is most beneficial."

Room—How to Cool.

The simplest and cheapest way to cool a room is to wet a cloth of any size, the larger the better, and suspend it in the place you want cooled. Let the room be well ventilated, and the temperature will sink from ten to twelve degrees in less than an hour. This is the plan adopted by many eastern nations.

Rupture.

The first thing to be done is to put the bowel back in its place, by gently pressing and kneading the tumor, and swaying it back and forth—being careful to use no violence—until it can be pushed within the abdominal walls. It is then to be kept in its place by the use of a truss, worn all the time.

St. Vitus's Dance.

St. Vitus's dance is a peculiar involuntary action, or perhaps it would be more correct to say an inability to direct the action of the voluntary muscles. It is a disease purely confined to the nervous apparatus of the body, and is very closely allied to, if not identical with, rheumatism. It probably is entirely due to a rheumatic condition of the blood and a tendency to the development of this disease in the system. It is at all events a curious fact that chorea is closely associated with many of the symptoms and consequences which are peculiar to rheumatism. It is a disease for the most part confined to young persons, but may become so chronic in

these as to last beyond the age of puberty and even beyond that of manhood. The most marked symptoms in this disease are the involuntary movements of what ought to be voluntary muscles—that is to say, muscles which, as a rule, are under the control of the will, refuse to act as the will directs, but make most erratic excursions in their endeavor to perform what is required of them. It is a disease which is associated with a considerable amount of twitching about the face and neck, and especially about the muscles of the mouth, the most extraordinary grimaces being made by those suffering from St. Vitus's dance, while on asking a child affected in this way to clutch or grasp any object, his will seems to lose the power of directing his hand to do what he wishes. Many things have been blamed for the development of the symptoms of St. Vitus's dance. The probability, however, is that it, like all other rheumatic affections, takes its origin in a constipated state of the bowels, thereafter an acid state of the blood, and consequently a poisoned condition of the nervous apparatus, which culminates in a rheumatic affection of the whole system. The nervous apparatus in these circumstances is first affected. The great point therefore in the treatment of this disease is to observe strict regularity of the bowels, to counteract the rheumatic condition of the blood by means of salicin or salicylate of soda, and at the same time soothe the nervous symptoms (which naturally arise from the vitiated condition of the blood acting upon the nerves which have become erratic) by means of valerianate of zinc combined with extract of conium—say, for a child of ten years old, $\frac{1}{2}$ grain of valerianate of zinc, and $\frac{1}{4}$ grain extract of conium, made into a pill and given three times a day.

Salivation.

Mix from one to four drachms of bruised gallnuts with a pint of boiling water, and infuse for two hours, then strain and sweeten.

Salve—Black Healing.

Take of olive oil, 3 quarts; common resin, 3 oz.; bees-wax, 3 oz. Melt these articles together, and raise the oil almost to boiling heat; then gradually add of pulverized red lead two and a half pounds, if in the summer; if in winter, one-quarter of a pound less. In a short time after the lead is taken up by the oil, and the mixture becomes brown or a shining black, remove from the fire, and when nearly cold add of pulverized camphor half an ounce.

Sciatica.

Sciatica takes its name from the fact that the sciatic nerve is affected in this disease. Sciatica, therefore, is the term which is applied to neuralgia of this particular part. It is the largest nerve of the body, and from it proceed the various branches which supply the lower limb from the thigh down to the toes. As has been inferred, it becomes at times the seat of very severe neuralgic pain, which is felt not only in the course of the nerve itself, but also in its various branches. The pain, however, may confine itself to the upper part or trunk of the nerve; but, as a rule, the trunk alone is not only involved, but the different offshoots supplying the calf of the leg and the foot also participate in the painful affection. It is a disease of the acutest nature, so far as pain is concerned, but beyond the fact of this, and that it disables the victim from moving about, and at the same time interferes with his rest, it is not in the least dangerous to life. The disease may arise from a debilitated state of the system, and, in consequence, a hypersensitive condition of the nerve results;

but, as a rule, sciatica is due more or less to the fact that the sheath of the nerve has become affected by a rheumatic condition of the blood, which tends to produce congestion of this membrane, and therefore pressure upon the nerve. Any affection of the blood which indicates a departure from health may induce sciatica, such as an acid condition, or a vitiated condition arising from other causes, the most noticeable of which is the absorption of fœtid matter due to constipation of the lower bowel.

Treatment.—First thing that should be done with regard to the treatment of this painful disease, is, to effect a clear and healthy condition of the lower bowel, after which, if the pain does not subside, salicin may be given in regular doses of 20 grains every two or three hours for an adult; quinine in 5-grain doses every four hours may be employed; and should these measures fail, 5 grains of phenacetine along with 2 grains of caffeine may be given every four hours, and, as a rule, this will have the effect of at least alleviating the severe suffering. At the same time, however, it will be essential that the general health of the individual be maintained as far as possible by the administration of good nourishing food, combined with port wine or stout, if these be required. Phosphorus, in the form of the compound phosphorus pill, should also be given regularly, at least three times a day. Constitutional treatment, however, does not always succeed in relieving this painful affection, and it may be necessary to resort to counter-irritation, either over the roots of the nerve or along its course. In the first instance, liniments having a counter-irritant, and at the same time soothing effect, may be employed with considerable advantage—such as a liniment composed of acetic

acid, compound camphor liniment, soap and opium liniment, of each equal parts; a little of this to be well rubbed into the parts affected every three or four hours. If this does not succeed in relieving the pain, then the following liniment may be applied at the same intervals, viz.: Menthol, 3 drachms; chloroform, $\frac{1}{2}$ an ounce; belladonna liniment, $1\frac{1}{2}$ ounces—a little of this may be applied, either rubbed well into the part affected or upon a flannel saturated with the mixture. In every instance it will be necessary that the patient be kept at rest, so as not to irritate the branches of the nerve by movement of the muscles which it supplies. There is another treatment which has been frequently recommended for this disorder, and that is the subcutaneous injection of morphia. It is needless to say that such a method of alleviating the pain of this disorder is to be condemned without stint, and this because it is very liable to give rise to a most pernicious habit which may cause the patient very considerable trouble to rid himself of.

Scratches.

Trifling as scratches often seem, they ought never to be neglected, but should be covered and protected, and kept clean and dry, until they have completely healed. If there is the least appearance of inflammation, no time should be lost in applying a large bread and water poultice, or hot flannels repeatedly applied, or even leeches in good numbers may be put on at some distance from each other.

Scrofula.

Scrofula is one of those disagreeable terms which have been applied to certain constitutional tendencies appearing in the young. It is in fact, synonymous with tuberculosis, and is a term which should at all times be

discarded as conveying an erroneous impression, and which brands the individual to whom it is applied with a loathsomeness which is quite beyond what it really indicates. Many individuals are condemned in a way which should never have obtained credence, by the fact that they have scars upon their neck. Now, these scars may not, and frequently do not, result from scrofula. They are simply the effects of abscesses which have formed within the parotid or submaxillary glands and which do not in the least, in many instances, indicate that these children have been tubercular or the subjects of scrofula. An inflamed condition of these glands may develop into abscesses, which, if not properly attended to, result in scars which are very offensive, and exceedingly disfiguring. The scars, however, are invariably the result of a want of knowledge on the part of those in attendance; as even if an abscess does form, which frequently will happen when the disease in a gland has proceeded to suppuration, any subsequent mark can be avoided by prompt measures being taken by the medical attendant.

Treatment.—These measures consist in evacuating the pus before the skin has become so attenuated by the progress of the abscess, and therefore its vitality interfered with to such an extent as to prevent its healing, as it otherwise would do had the abscess been opened and the pus allowed to escape in its early stages. No doubt, when these glands are diseased and this proceeds to suppuration, the child is in a condition of health which may require medical treatment. This, however, should not altogether be depended upon, because nature will be very much assisted in its efforts to throw off the disease or to procure its resolution, if the general health is assiduously at-

tended to. When there is a tendency to a glandular affection of this kind, many medicines prove of immense service; but the most prominent of these is the muriate of calcium, which, if administered regularly after food, will have a specific effect in affording to the glands an amount of vitality which may enable them to throw off the disease entirely. Cod-liver oil and extract of malt are also very valuable medicines in these affections, and should invariably be prescribed, but not to the exclusion of muriate of calcium, which probably is the most efficient remedy, both in preventing disease of the glands, and at the same time enabling them to throw off disease when it has taken possession of them.

Scurvy.

Scurvy is a disease which now, fortunately, is very little met with, thanks to the fact that it is not essential to lay in a stock of salted meats to the same extent that was necessary in olden times, and also to the fact that vegetables can be preserved in such a way as to retain all the peculiar qualities which they possess in the fresh condition. The human frame requires the daily employment of vegetables as an article of diet, otherwise the blood becomes deteriorated and its health interfered with. It is, therefore, essential that fresh vegetables as well as fresh meat should enter into the dietary of every individual, or the blood will become deteriorated and its vitality reduced. In by-gone days, when long voyages were undertaken, such dietetic arrangements could not possibly be made, in consequence of the lack of knowledge which now happily we possess, and therefore scurvy was a disease very largely prevalent among sailors, whereas now it is a disease which is very little heard of; and we question very much whether any young practitioner has ever come

across an example of this painful affection which at one time was one of daily occurrence.

Treatment.—The treatment of scurvy, when it does exist, consists in the frequent administration of lime or lemon juice, which substances go to supply the deficiency which exists within the blood; and it is a well-known fact that, with a view of avoiding the occurrence of scurvy among sailors, the government insisted that a certain supply of these vegetable juices should accompany them on each voyage, so that they might by this means be provided with a substitute which the absence of fresh vegetables necessitated them to partake of, with a view of preserving them from this painful disorder. The symptoms of scurvy generally manifest themselves first in the gums, which become spongy and have a great tendency to bleed; frequently this proceeds to such an extent as to loosen the teeth, which drop from their sockets. These symptoms are generally followed by an ulcerated condition of certain portions of the skin, especially that of the legs, which are difficult to heal even after the cause of the ulcer has been entirely removed. The bones are also liable to become affected; in fact, the disease culminates in a generally unhealthy condition of the blood, which has affected all the tissues to a greater or less degree. It is a matter of thankfulness that now-a-days this painful disease has been almost eradicated, in consequence of the precautions which are taken to preserve the sailors' health, by supplying them with an abundance of fresh and wholesome nourishment, instead of the rubbish that was at one time deemed sufficient for their wants.

Sea-Sickness.

Sea-sickness, as is well known, is one of the most disagreeable forms of

sickness that can possibly exist. It may continue to such an extent, as the author has seen it on one occasion, as to end in death. In any case, when it is persistent, it has a debilitating effect for the time being, although afterwards it is generally followed by an enormous appetite, a good digestion and a speedy making up of the tissues which have been wasted. One of the best preventives against sea-sickness is to support the abdominal walls and those of the chest with a stout firmly fixed bandage. At the same time very particular attention should be paid to the daily emptying of the bowels. Among the medicines which have been recommended for sea-sickness, and which have proved very serviceable, are—phenacetine in 5-grain doses, bromide of potassium in 30-grain doses, chloral in 15-grain doses, and other substances of less utility. The great point, however, is to endeavor to have the organs of the chest and abdomen kept as fixed as possible until the nervous system gets accustomed to the motion of the vessel.

Seasons.

Seasons have the most important effect upon the health of mankind. The seasons vary so much in different countries that it must be apparent to any observer what the consequences are of the climatic changes which take place at different periods of the year. It does not appear, however, that a variable climate tends to shorten life, but rather it would seem to be conducive to longevity. Possibly this, however, is due to the fact that greater care is taken in the matter of clothing, ventilation, and general hygiene, than in climates where the changes of temperature can be calculated upon to a nicety. In this country, doubtless, the winter months are most try-

ing to the health, and have a larger death-rate than in summer, whereas in some of the continental countries the death-rate would appear to be higher in summer than in winter. It may be that local causes have something to do with this, and certainly if sanitary measures are not carried out very strictly in those climates where the weather is intensely hot during summer this must add very much in the development of disease and consequent fatalities.

Sending for the Doctor.

Sending for the doctor should be attended to with as little delay as possible, as disease can always be more readily overcome in its early stages than if it is allowed to proceed to any length before treatment is commenced. It should always be the object of the patient to give the doctor information as early in the day as possible when he is required, so that he may be able to economize his time to the greatest extent and not be compelled to travel over the same ground more frequently than is necessary. A great many thoughtless people put off till they can do so no longer, and usually their fears come to a point when evening, or even night, is far advanced. These fears, perhaps, may be aggravated by the fact that disease generally assumes a more formidable appearance at night than it does in the morning. Then, again, if the disease is not showing any very alarming symptoms, the patient or the patient's friends, should not demand an immediate visit; on the other hand, if the symptoms are alarming, urgency should always be indicated by a special message. A great many people, especially those of a timid and nervous temperament, become alarmed at a very little, and attach to symptoms a

meaning which they should never possess. Such people are very liable to be left in the lurch some day or other, for if the doctor has been repeatedly summoned to such patients, and found upon his arrival that there is little or nothing the matter, he will be very apt to take for granted that this may invariably be the case, and thus not attend so promptly as otherwise he would have done, when serious disease may have manifested itself.

Shivering.

Shivering is a symptom which frequently indicates the onset of some febrile disturbance. Its technical term is "rigor." It is very frequently the first indication of some inflammatory or febrile condition which threatens the system. When shivering exists the individual experiences the sensation of extreme cold, so that the limbs shake and the teeth chatter in a most extraordinary manner, and any one looking at one in this condition would naturally suppose that he was suffering from a reduced condition of the animal temperature. If however, the thermometer be introduced, either under the armpit or into the mouth when this shivering is present, it will be ascertained that actually the bodily temperature is very much above the normal, and indicates a considerable amount of fever. It is therefore desirable, when the symptom of fever is present, to take measures which shall promote a free action of the skin and at the same time reduce the temperature of the body. With this view the patient should be put to bed and warm gruels administered, together with three grains of phenacetine, which medicine may be repeated every four hours till the temperature of the body is reduced.

Shock.

Shock is that depressing effect upon the nervous apparatus which is produced either by some distressing news or other influence which affects the nervous system independent of the body; or by direct violence to the tissues by accident or otherwise. The extent of a shock depends entirely upon the impression which has been conveyed by its effect, either upon the mind or physique of the individual. In every case, however, it is the nervous system which receives the impression, and it must always be attributed to the ultimate effect upon this portion of the animal economy. When nervous shocks exist it is indicated by a slow and feeble pulse, combined with a collapsed condition of the exterior of the body, and threatening death from positive weakness. The means to take, therefore, to remove these conditions should invariably consist in the application of external heat, and the administration of stimulants, such as sal volatile, brandy, whiskey, or ether, and afterwards, in the free administration of beef juice and other stimulating fluids. If there has been much loss of blood connected with an accident, and which of course will render the shock more permanent, it may be necessary to have recourse to transfusion, which is the introduction of blood obtained from a healthy individual who can afford to part with some of his blood, and thus directly supply the deficiency which has resulted from the loss of the vital fluid sustained by the injured person. It is a remarkable fact, however, that where a severe injury has occurred, and shock in consequence is the result, that if the patient be placed under chloroform, with a view to having the shattered limb removed or

the injured tissue repaired, the shock will pass off during the period that the patient is under chloroform, and this possibly may not return after the operation has been completed. In olden times it was always thought necessary to allow reaction to set in before any operation was undertaken. Now, however, thanks to chloroform, such an idea is entirely exploded.

Shocks—Violent.

These will sometimes stun a person, and he will remain unconscious. Untie strings, collars, etc.; loosen anything that is tight, and interferes with the breathing; raise the head; see if there is bleeding from any part; apply smelling-salts to the nose, and hot bottles to the feet.

Shoulder-Braces—Instead of.

A gymnasium instructor of large experience says that the use of shoulder braces to keep the carriage erect is foolish, because the braces take the work off of those muscles that should be developed, and that should not be allowed to grow weaker and weaker. To attain an erect carriage one should exercise certain muscles many times a day. The following list of exercises given in the "Youth's Companion" is a very good one—the exercise can be performed without apparatus.

1. Make it a rule to keep the back of the neck close to the back of the collar.
2. Roll the shoulders backward and downward.
3. Many times a day try to squeeze the shoulder blades together.
4. At short intervals during the day stand erect—head up, chin in, chest out, shoulders back.
5. Try to look at the top of your necktie.
6. Hold the arms behind the back.

7. Carry a cane or umbrella behind the small of the back or behind the neck.

8. Walk with the thumbs in the arm holes of the vest.

9. When walking, swing the arms and shoulders strongly backwards.

10. Look upward as you walk.

The Sick and the Old—Diet for.

Dr. George S. Keith, the famous English lecturer, recommends for the sick and the aged, a diet of milk with a little lime-water in it. The lime-water will cause the milk to agree with the most delicate stomach. Dr. Keith believes that strong meat belongeth to them that are of full age. The use of meat in the diet of sick people should be very restricted.

Sick—Food for.

The greatest care should be taken in the preparation of food for the sick. It should be just right, or the weakened and sensitive appetite will refuse it. If gruel is scorched in preparing, or whatever you attempt fails the first time to be as nice as it should be, throw it away and make more. Be scrupulously neat in serving it up. Use your prettiest dishes and finest napkins. Something depends upon looks; and the eye of a sick person may be unusually critical. Except in the preparation of light puddings, the process of baking is inadmissible for the sick. Roasting is better—a light roast potato is sometimes very acceptable. Meats should be delicately broiled, except when boiled for broths.

Sick-room—Pure Air in.

The disagreeable and unhealthy evil of the foul gas escaping from a kerosene lamp burnt all night in a sick-room is very easily remedied. All that is necessary is to take a raisin box, or any suitable-sized box, that will contain the lamp when set up on end.

Place the lamp in the box, outside of the window, with the open side facing the room. When there are blinds, the box can be attached to each by leaving them a little open and fastening with a cord; or the lamp box can be nailed to the window casing in a permanent manner. The lamp burns quite as well outside, and a decided improvement of the air in the room is experienced.

Skin, Artificial—For Burns, Bruises, Abrasions.

Proof against Water.—Take gun cotton and Venice turpentine, equal parts of each, and dissolve them in 20 times as much sulphuric ether, dissolving the cotton first, then adding the turpentine; keep it corked tightly. Water does not affect it, hence its value for cracked nipples, chapped hands, surface bruises, and things of a like nature.

Skin—Discolored.

Discolored skin, such as moles, freckles, sunburn, etc., is the result of diseased action. It is best not to meddle with the moles. For the change of color called sunburn, a lotion made of two ounces of lime-water, and two ounces of flax-seed oil, is the best. Freckles are removed with the same, or with this: corrosive sublimate, five grains; almond mixture, half a pint. Mix and apply. If the skin is bleached in spots, apply some stimulating liniment.

Skin—Grafting.

In a letter to the "London Lancet," David Fiddes, Surgeon to the Royal Infirmary, states that it is unnecessary to put the patient to the pain of cutting a piece of healthy skin from the body for the purpose of transplantation. All that is necessary to be done, is to take a long bistoury or razor and shave or scrape off the

epidermis scales from the convex aspects of the forearms and thighs, and place them on the healthy granulations. This can best be done by brushing the scales off the bistoury with a camel's hair pencil. After securing them in situ for three or four days by means of adhesive plaster, the granulations on which the epidermis scales were placed assume a glazed, bluish appearance, which gradually grows into the skin, and meets the nearest edge of the healing ulcer, which edge shoots out and meets the newly formed skin on the granulation.

Skin—To Soften the.

If flowers of sulphur be mixed in a little milk, and after standing an hour or two the milk (without disturbing the sulphur) be rubbed into the skin, it will keep it soft and make the complexion clear. It is to be used before washing. The mixture, it must be borne in mind, will not keep. A little should be prepared over night with evening milk, and used the next morning, but not afterwards. About a wine-glassful made for each occasion will suffice.

Skin Irritation—Camphor Ice for.

For skin irritation melt of spermaceti 1 drachm, with almond oil 1 ounce, and add of powdered camphor 1 drachm

Green Ointment.—Honey and beeswax each $\frac{1}{2}$ lb., spirits of turpentine 1 ounce, wintergreen oil and laudanum each 2 ounces, finely powdered verdigris $\frac{1}{4}$ of an ounce, lard $1\frac{1}{4}$ lbs.; mix by a stove fire, in a copper kettle, heating slowly.

Glycerine Ointment.—Starch 3 parts, glycerine 10 parts. The starch, finely pulverized, is digested for about an hour with the glycerine, at the heat of a water-bath.

Holloway's Ointment.—Take butter 12 ounces, beeswax 4 ounces, yellow resin 3 ounces. Melt and add vinegar of cantharides 1 ounce; evaporate, and add Canada balsam 1 ounce, oil of mace 1 drachm, and balsam of Peru 15 drops.

Skin Salve—Balm of Gilead.

Mutton tallow $\frac{1}{4}$ lb., balm of Gilead buds 2 ounces, white pine gum 1 ounce, red precipitate 1 ounce, hard soap 1 ounce, white sugar 1 tablespoonful. Stew the buds in the tallow until the strength is obtained, and press out or strain; scrape the soap, and add it with the other articles to the tallow, using sufficient unsalted butter or sweet oil to bring it to a proper consistence to spread easily upon cloth. When nearly cool, stir in the red precipitate, mixing thoroughly.

Skin—Cold Cream for.

Oil of almonds, 4 oz.; white wax and spermaceti, of each 2 drachms; melt; add rose water, 4 oz.; orange-flower water, 1 oz. Used to soften the skin.

Violet Cold Cream.—Almond oil, $\frac{3}{4}$ lb.; oil of cassia, $\frac{1}{4}$ lb.; rose water, 1 lb.; sperm, 1 oz.; wax, 1 oz.; otto of almonds, $\frac{1}{4}$ drachm.

Sleep—Sure Way to Bring.

Pres. Hyde, of Bowdoin, has a sure method for bringing sleep. The "Outlook" gives it as follows:

Assume an easy position, with the hands resting over the abdomen. Take a long, slow, but easy and natural breath, in such a way as gradually and gently to lift the hands outward by the action of the abdomen. At the same time slowly and gradually open the eyes so that at the end of the inspiration they get wide open and directed upward. Let the breath out easily and naturally, letting the hands fall inward as the

outward pressure of the abdomen is withdrawn. At the same time let the eyes drop and the eyelids naturally fall by their own weight, so that they are closed at the end of the expiration. Do all this quietly and naturally. Do not make too hard work of it. Repeat the inspiration and expiration with opening and lifting, dropping and closing of the eyes, ten times. Then take ten breaths in the same way, but allowing the eyes to remain closed. Alternate ten breaths with opening and closing of the eyes, and breaths with closed eyes. When the eyelids begin to feel heavy, and you feel tired and sleepy, as you will very soon, go through the motions more and more easily and lazily, until you merely will the motions without making any effort, or hardly any effort, to execute them. At this stage, or more likely in one of the intervals of breathing without any motions of the eyes, you will fall asleep.

This method induces the respiration that is characteristic of normal sleep. It tires the set of muscles, the tiring of which is one of the favorite devices for producing hypnosis. It produces and calls attention to certain sensations in the eyes and eyelids which are normal precursors of sleep. Finally, persons who have had difficulty in going to sleep, and staying asleep, report that this method puts them to sleep, and puts them back again when they wake up too soon.

Sleep—For Brainworkers.

To aid brainworkers in getting to sleep the blood should be drawn from the head to the extremities by light exercise, as in rising on the tip-toes and heels alternately, and light dumb-bell work. Then take a light meal of graham crackers, and a glass of milk by sips, or other easily

digested food. A ripe sub-acid apple will disinfect the mouth and aid the stomach. Then follow the method given above, on how to bring sleep. If feverish, take a light sponge bath of moderately warm water.

Sleep—Position in.

Sleeping-rooms should always be so arranged, if possible, to allow the head of the sleeper to be towards the north. Frequently, in cases of sickness, a person will find it impossible to obtain rest if the head is in any other direction, and often a cure is retarded for a long time. A Vienna physician had a patient who was suffering from acute rheumatism, with painful cramps running from the shoulders to the fingers; and, while his head was to the south, he could do nothing towards his relief. On turning the bed, however, so the head was towards the north, the patient uttered expressions of pleasure, and in a few hours a great improvement had taken place, and he was in a few days almost entirely cured. Many other cases are given by scientific persons; and people, in building houses, should always have this in view.

Sleeping Together.

During the night there is considerable exhalation from our bodies, and at the same time we absorb a large quantity of the vapors of the surrounding air. Two healthy young children sleeping together will naturally give and receive healthy exhalations; but an old, weak person near a child will, in exchange for health, only return weakness. A sick mother near her daughter communicates sickly emanations to her; if the mother has a cough of long duration, the daughter will at some time also cough and suffer by it; if the mother has pulmonary consumption, it will

be ultimately communicated to her child. It is known that the bed of a consumptive is a powerful and sure cause of contagion, as well for men as for women, and the more so for young persons. Parents and friends ought to oppose as much as is in their power the sleeping together of old and young persons, of the sick and of the healthy. Another reason ought to forbid every mother or nurse keeping small children with them in bed; notwithstanding the advice of prudence, no year passes that we do not hear of a new involuntary infanticide. A baby full of life, health and vigor in the evening is found dead the next morning, suffocated by its parents or nurse.

Sleeping After Eating.

Medical men and others who are looked upon as authorities in hygiene, and there are many such, whose study has been centred upon the question of health, are often asked whether it is harmful to indulge in a "nap" after eating a hearty meal?

After dinner "rest a while" is an old and wise saying. In resting a while, the seductive charms of sleep come on. It is a blessing. It indicates easy digestion, and nature is indicating her sway. If "forty winks" are indulged in it is most refreshing.

Then comes the question, is it harmful? By no means; for this very reason, that the process is merely a physiological one, and as such, when it occurs, is quite natural. It is a thousand times better than to engage in mental or physical labor after meals.

Digestion in Sleep.—When digestion is in progress, nature has arranged that all the available blood in the body shall be collected in and about the digestive organs. Consequently the blood supply to the brain

falls to a low ebb, and thus sleep is easily induced.

Life would be prolonged and better enjoyed if a comfortable couch were in each room. The ups and downs of life, and all that weary and jade our mental and physical constitutions, may be lessened by a stretch on the couch, followed by a short sleep.

Ten minutes of this soothing narcotic, when the head throbs, the soul yearns for endless rest, would make the vision clear, the nerves steady, the heart light, and the star of hope shine again until life is enjoyed and there is no longing for extinction.

Do not despise the upstairs lounge or the sofa in the sitting room. Never mind the tidies or tapestries. Take a stretch, close the eyes, make all quiet; never mind your boots, rest your brain, and sleep for ten minutes or more after dinner.

Sleeplessness, or Wakefulness.

Wakefulness, or sleeplessness, frequently arises from the neglect of taking food shortly before going to bed. It is quite unreasonable to suppose that the stomach can be in a healthy condition if it is permitted to fast for a long period, as often elapses between dinner and breakfast; and frequently when a person wakes in the middle of the night and is unable to sleep, the partaking of a little light nourishment such as the white of an egg switched up in a teacupful of milk, or a piece of bread and butter with milk, will induce sleep which otherwise would be courted in vain. There is no doubt that sleeplessness is frequently a concomitant of advancing years, and this is partly due to the fact that sleep is not so essential to an elderly as it is to a young person, and in old age the body requires less sleep; consequently, elderly people are more wakeful than young people.

Slough.

Slough is a small portion of dead tissue which is still attached to a living body, and by which, therefore, it has not yet been cast off. It may be the result of injury or strong inflammation of the part, either of which has destroyed the vitality of the tissue affected. To assist in the separation of a slough, and to destroy the offensive odor that invariably is associated with it, it is necessary to wash the affected part well with an antiseptic solution, and afterwards dress it with an antiseptic such as carbolic lotion, bi-chloride of mercury lotion, or cover it over with some substance such as boracic acid, aristol, or iodoform.

Small-Pox.

Small-pox is probably the most loathsome of all the contagious or zymotic diseases which are known in modern times. It is characterized by the most overpowering and distressing premonitory symptoms, being quite unlike in their severity the symptoms appertaining to any other infectious disorder. It commences with a feeling of shivering, lassitude, intense pain and discomfort in the back, together with a sinking sensation at the stomach, intense headache, thirst, and fever. On the third day after the above symptoms have set in and continued, general relief will be experienced, this is accompanied by the appearance of minute red spots, very much resembling those of the preliminary stage of chicken-pox, over the forehead, neck, wrists, arms, chest, and abdomen, and latterly upon the legs. Such is the course of the eruption which is characteristic of this disorder, the lower extremities being invariably the last affected. The eruption gradually becomes more and more pronounced until each spot attains the character of a vesicle. Frequently, however, the eruption does not permit of the

isolation of each vesicle, as several may appear so closely together as to become confluent—that is to say running into each other. In such a circumstance the disease is named “confluent small-pox.” There is one particular characteristic of the pustule of small-pox, and that is, it becomes depressed at its apex, or as it may be termed, “umbilicated,” because it somewhat resembles the appearance of the navel. About the sixth or seventh day after the vesicles have reached their maturity—that is to say after they have attained their full size—their contents become more and more opaque, and latterly purulent, the serum which they had originally contained having been transformed into pus. At this period of the disease—that is, when about the eleventh day or upon the eighth day after the appearance of the eruption—the disease is said to have matured, which indicates neither more nor less than that decomposition has taken place within the vesicles; then the so-called secondary fever comes on, and the febrile symptoms, which had to a large extent abated before the eruption had reached this stage, become aggravated.

The Critical Period.—At this period of the disorder the greatest danger is to be apprehended, for it is then that death most frequently occurs. Now, it is an extraordinary circumstance that, though this secondary fever is so much dreaded, there should be no necessity at all for its appearance. The author has had a large experience in the treatment of small-pox, and has been the means of instituting a treatment of this loathsome disorder which entirely does away with secondary fever, and therefore reduces the death-rate from small-pox to a very great extent. Not only is the secondary fever by this treatment abrogated, but the course of the disease is at the same

time very much modified, while the tendency to pitting is greatly reduced.

The Treatment consists in the application to every vesicle of a solution containing one part of carbolic acid to fifteen parts of glycerine, night and morning. By this means the irritation caused by the eruption is alleviated, and the tendency to itching lessened. Suppuration is also avoided; hence the vesicles disappear without suppuration, and there being no irritation developed, no scratching is indulged in, and the skin resumes its normal condition without having undergone destruction at the particular points where the eruption has appeared, which was wont to be the case. In every work upon the symptoms and treatment of small-pox a great deal of stress is laid upon the fact that the chief danger occurs about the time of the secondary fever; this, of course, being due to the development of pus within the vesicles, as there can be no doubt that these vesicles are produced by the efforts of the skin to eliminate the poison which, coming to the surface, produces acute inflammation at these various points; and the germs of the disease being located where this depression of the vitality of the skin has been induced, develop there to a large extent and make a nidus of the skin wherever opportunity offers. If antiseptics, however, such as carbolic acid, are applied to the surface of the skin where the eruption exists, the vitality of these germs is destroyed, their virulence therefore is aborted, and the effects of the disease suppressed; in short, no secondary fever ever appears and the patient sails safely over a crisis which at one time was thought to be inevitable, and in every instance most dangerous. It is a well-known fact that small-pox need hardly ever exist, in consequence of the beneficent effects which vaccination produces; this

being evidently due to the fact that vaccine in the cow is identical with small-pox in the human being, just as grease on horses' feet, and distemper in dogs are supposed to be due to the same poison. If, therefore, the disease which has been attenuated in the system of the calf is introduced into that of the human being, the effects produced destroy the susceptibility which would otherwise exist. The author has observed on more than one occasion when small-pox was prevalent, the effects of vaccine virus and that of small-pox culminating almost at the same period within the human system when invariably the vaccine virus, probably because of the start it had got, has overcome that of small-pox and aborted it—the vaccine coming to a head while the small-pox simultaneously receded and entirely disappeared. As is well known, vaccine disease is not infectious in the human subject, while small-pox is highly so. Again, vaccination is devoid of danger, while small-pox is highly dangerous. It therefore behooves all who have charge of children to insist upon their early vaccination and re-vaccination, if necessary, during the prevalence of the disease in the neighborhood. The medicines which are usually given in this disorder are those which act as slight aperients and keep the blood pure in this manner, the most valuable of which is Epsom salts, which, given highly diluted with water, forms a grateful and at the same time beneficial purgative. The diet should consist of the most nutritious and easily digested articles, such as an abundance of gruels made up with milk and farinaceous substances, together with chicken soup, drinks of barley-water, rice water, or oatmeal and water.

Small-Pox—Pitting in.

I. H. Bird, M. D., used an ointment made of charcoal and lard to

prevent pitting in small-pox. This is applied freely over the surface of the face, neck and hands, as soon as the disease is distinguished, and continued until all symptoms of suppurative fever have ceased. The application allays the itching, and seems to shorten the duration of the disease, and leaves the patient without a blemish, the eruption protected by the ointment not even showing signs of pustulation; the charcoal preventing the action of light, and lard that of air.

Another.—The *Melia Azidavaclita* L. of India is used in that country by the natives to cover the bodies of patients recovering from small-pox, it being believed to prevent the marks becoming permanent. Dr. Wight says of it: The leaves beaten into a pulp and externally applied act like a charm in removing the most intractable form of psora and other pustules of an eruptive nature.

Another.—Sweet oil and lime-water, as these are generally prepared for applications to burns or water-scalds, will operate to prevent or allay all irritation, and hinder the discoloration of the cuticle and the pitting, which are so often the accompaniment of this fearful disorder.

Small-Pox—Darkness in Treating.

It is stated that if a patient, in the beginning of the attack, be put in a room from which absolutely all light is excluded save that of a candle, the effect is to arrest the disease in the papular or vesicular stage; it never becomes purulent, and the skin between the vesicles is never inflamed or swollen; the liquor sanguinis is prevented from becoming pus; the large scabs of matter never form over the face; there is no intense pain, and only trifling itching, and

the smell is either very slight or altogether wanting.

Sneezing.

Sneezing is a convulsive movement produced by a reflex action affecting the nervous centres which control the secretion of the mucous membrane of the nostrils. This convulsive effort causes a forcible expulsion of air through the nares, as a rule carrying with it the irritating agent which has produced the act—that is to say, if it is due to the introduction of some foreign substance, such as snuff. Sneezing, again, may be produced, as it invariably is, in the preliminary symptoms of catarrh, measles, influenza, or any diseased condition which affects the air passages, because of the irritation produced in the nostrils by the poison which has located itself there, and endeavors to become resident for the time being. The act of sneezing is nature's effort to dislodge the poison and protect the system from the disease which characterizes it. Continual sneezing frequently results from the irritating particles consisting of the pollen of grasses and flowers, which culminates in hay fever. Persistent sneezing, however, also occurs where no foreign matter apparently has found entrance to the nostrils, but is caused by a catarrhal condition of the mucous membrane. In this case it is always accompanied by considerable catarrh of a somewhat acrid nature; it is then termed "coryza."

Snuffles, or Sniffles.

'Snuffles or sniffles is a term sometimes applied to catarrh of the nasal mucous membrane of infants. Its name is derived from the fact that the child makes a considerable noise in its efforts to breathe because of its instinctive desire to breathe only

through the nostrils. The best treatment for this affection is to keep the child in as equable a temperature as possible, and introduce within the nostrils a little vaseline, and anoint the nose and forehead frequently with some animal fat, such as lard.

Somnambulism or Sleep-walking.

Somnambulism, or sleep-walking, is due to an unhealthy condition of the nervous system brought by the presence of some irritating matter, usually within the alimentary canal. This excites the nervous centres to a state of unnatural activity during the epoch of sleep, or rather it should be said that sleep is disturbed by a species of wakefulness. As a rule, somnambulism is associated with dyspepsia of one form or another, or a constipated state of the lower bowel; these causes being removed, therefore, will usually result in the cessation of this disagreeable and sometimes dangerous manifestation.

Bed Sores.

Bed sores arise in lingering illnesses, and are due to confined pressure upon one particular part. They chiefly occur on the buttocks, and give rise to serious complications in the course of diseases in which they occur. The greatest safeguard against such sores is the employment of a water-bed, whereby the pressure is equalized over the whole body. When a bed sore threatens, the part presents a red and congested appearance. In such circumstances, the surface so affected should be bathed frequently with warm water, and after drying with a soft towel, eau de Cologne or whisky should be applied. If a bed sore has really formed then it is desirable to keep it clean by means of frequent applications of antiseptics, such as charcoal poultices or carbolized oil, which will promote healing. One part

of carbolic acid in sixteen parts of oxide of zinc ointment is also a valuable dressing in such circumstances. The daily application of aristol by dusting it over the raw surface is an excellent healing agent.

Spasm.

Spasm is a painful contraction of the voluntary or involuntary muscles of the body, such as cramp in the legs, colic of the bowels or womb, angina pectoris when the heart is affected, of the biliary duct when gall stones are present, or of the ureter when a calculus is passing from the kidneys towards the bladder. It is characterized by sudden agonizing pain in the region of the part affected, which in a short time subsides, but only to be renewed when further muscular action is brought into play. The very severe pain that is induced in any form of spasm makes it important to produce speedy relief, and this can only be obtained by the action of some narcotic, antispasmodic agent.

Treatment.—Among the most useful and universally beneficial of which in these circumstances is the subcutaneous injection of morphia; next to this the frequent application of very hot fomentations freely sprinkled over with laudanum, and afterwards the administration of opium by the mouth, or the administration of chloroform by inhalation. If the spasm is in the alimentary canal, any local or constitutional remedies that may be applied should invariably be followed by the free administration of a purgative. If on the other hand, the gall duct is the seat of disorder, together with the subcutaneous injection of morphia and the local application of opium, olive oil should be administered in large and frequently repeated doses. If the ureter is the seat of disease, and the calculus is passing from the kidney to

the bladder, great benefit may often be derived by setting the patient in a hot sitz-bath for a considerable period, at frequently repeated intervals. If the heart is affected, as it is in angina pectoris, the greatest benefit will be derived from the inhalation of nitrite of amyl, or the administration of this substance combined with nitro-glycerine in minute doses, while the condition of the stomach should be carefully attended to, and antispasmodics administered by the mouth—the most valuable of which are chloric ether combined with ammoniated tincture of valerian. There is another form of spasm which frequently attacks children, especially if the digestive organs or bowels are out of order. This is called spasmodic or spurious croup and will generally be relieved by the administration of a good dose of castor oil, while the upper part of the chest and throat should be well rubbed with an antispasmodic liniment, such as the following: Liniment of soap and opium, liniment of belladonna, and compound camphor, of each equal parts—a little of which should be well rubbed into the throat and upper part of the chest every two or three hours.

Spasm—Opium Enema for.

Rub three grains of opium with two ounces of starch, then add two ounces of warm water. Use as an anodyne in colic, spasms, and in bleeding from the bowel, etc.

Spinach.

Spinach is a wholesome as well as a nutritious vegetable, and, as a rule, is easy of digestion. The taste for it, however, is always an acquired one, and in consequence of its peculiar flavor it is not a general favorite.

Spinal Affections—Liniment for.

Take a pint bottle and put into it oil of organum, wormwood, spirits of

turpentine and gum camphor, of each one ounce, and fill it with the best alcohol.

Spleen—Chronic Inflammation of.

The symptoms are a feeling of tightness and pain in the left side—the pain being increased on pressure, or by lying upon the left side. Sometimes the organ enlarges, so as to be felt by the hand. There is sometimes numbness, weakness of the legs, palpitation of the heart, difficulty of breathing, inability to exercise much, obstinate constipation, vomiting of food, piles, dry skin, tongue coated white or red, low spirits, and occasionally dropsical affections. Treatment should be about the same as in inflammation of the liver. After the active inflammation is subdued, the warm bath may be used once or twice a week. In the chronic form of the disease, counter irritation with the compound tar-plaster, with mustard-poultices, croton oil, or tincture of iodine, will be particularly needed. Keep the bowels open, and if the patient is pale and bloodless, give iron as a tonic.

Splinters—To Extract.

Thorns and splinters finding their way under the skin frequently give no inconsiderable pain, and unless extracted, the annoyance may be very great, as inflammation will in all probability ensue, which is the process nature adopts for getting rid of the cause of irritation. If the splinter or thorn cannot be immediately extracted—for which purpose a needle will be found in most cases a sufficient surgical instrument—linen dipped in hot water ought to be bound round the place, or the part may be bathed in hot water. In the event of inflammation, which may probably issue in the production of an ulcer, the steam of hot water should be applied, and afterwards a poultice of bread and milk.

Sprain.

Sprain is the result of an accident, which either overstretches or ruptures the ligaments surrounding a joint. The ankle and wrist are most liable to this accident. When such occurs it develops pain of a most exasperating character, which is immediately followed by considerable swelling of the part, and possibly discoloration—the swelling and discoloration being due to the rupture of small vessels which supply the part which has been injured. If the discoloration does not show itself after the accident it will undoubtedly do so at a later period, and if the limb has been placed in a horizontal position this discoloration may spread to a considerable extent up the limb. Sprains may frequently be confounded with fractures, especially when the ankle is involved, as a small projection of the tibia and fibula, called in each case the “malleolus,” may be fractured, and when this occurs it, of course, adds very much to the gravity of the accident. In a sprain, however, pure and simple, no such complication arises.

Treatment.—The treatment that is suggested in sprains is that which will give the most immediate relief to the part which has been injured, and probably the most efficient method of treating this is by the application of four or six leeches over the seat of injury. The effect of leeches in such circumstances is very apparent and always beneficial—the pain will speedily subside, and the convalescence of the part be very much accelerated. If, however, the sprain has existed for a considerable time, leeches will not then be of the same service, and hot fomentations and soothing liniments may be applied at regular intervals, with a view of relieving the intense suffering that always accompanies the rupture of ligaments, which practically consti-

tutes a sprain. After the liniment has been applied, a firm bandage should be brought to bear upon the parts which have been injured, both to promote absorption of the fluid that is being effused by the accident, and also to support the weakened joint. It is a mistake to keep a patient who has been suffering from a sprained joint too long in one position, as thereby stiffening of the joint is liable to result, so that after a rest of a day or two, slight movement should be encouraged (at the same time retaining the bandage in position), with a view of strengthening the weakened parts. In about ten days or a fortnight afterwards the joint should be placed under a douche bath, and afterwards rubbed vigorously with a rough towel, so as to stimulate the process of absorption, which must necessarily go on until the sprain is completely recovered from.

Sprains, Etc.—Liniments for.

Camphor Liniment.—Rectified spirits, seventeen fluid ounces; strong water of ammonia, two and one-half ounces; camphor, two ounces; oil of lavender, five drops. Shake.

Soothing Liniment.—Take of best alcohol, one gallon; oil of amber eight ounces; gum camphor, eight ounces; Castile soap, shaved fine, two ounces; beef's gall, four ounces; ammonia, three F's. strong, twelve ounces; mix and shake occasionally for twelve hours, and it is fit for use.

Good Samaritan Liniment.—Take of 98 per. cent. alcohol, two quarts, and add to it the following articles: Oils of sassafras, hemlock, spirits of turpentine, tinctures of Cayenne, catechu, guaicaci, (guac), and laudanum, of each one ounce; tincture of myrrh, four ounces; oil of organum two ounces; oil of wintergreen, one-half ounce; gum camphor, two ounces; and chloroform, one and one-half ounces.

Squinting.

Squint is due to a spasmodic contraction of the rectus muscle of the eye at one side or other. It is a most disfiguring deformity, but fortunately it is one that can at any time be removed by a simple operation. In technical language it is termed "strabismus." The method of operating for the cure of squinting is exceedingly simple, and with the assistance of cocaine can be performed without any suffering on the part of the patient. In former years, before the discovery of cocaine, it was usually necessary to place the patient under chloroform to enable the operation to be successfully performed, and doubtless even at the present time this is preferable to cocaine.

Stings—Jelly-fish.

Stings of the jelly fish are frequently met with by bathers on the seacoast. These creatures have the power of ejecting from their tentacles a poisonous substance which, when coming in contact with the skin produces redness, swelling, and pain, so much so that a whole limb or a considerable area of the body may be thus affected. The symptoms usually subside spontaneously in the course of three or four days if allowed to do so, but in the meantime they cause considerable suffering of the part affected, and may render the limb useless and cause a great deal of needless anxiety. The best application to make in these circumstances is an alkaline solution, such as a weak solution of ammonia, bicarbonate of soda, or potash. It is of no material consequence what strength be employed, but a weak solution frequently applied will have a better effect than a solution of greater strength.

Stings of Bees, Wasps, Etc.

Stings of bees, wasps, etc., are produced by the insertion of the sharp-

pointed and perforated stings which permits the introduction of formic acid into the part. It is always accompanied by intense pain and inflammation at the seat of injury. The poison is secreted by a small gland at the base of the sting, where it is contained in a minute sack. Individuals are affected very variously by a sting from these insects—in some it produces only trifling symptoms, while in others it may give rise to very serious consequences, and prolonged suffering. Not unfrequently a sting of this nature has proved fatal. The first thing to do in the treatment of stings is to endeavor to extract the sting itself, and afterwards apply ammonia in a liquid form to the part, or if this be not at hand, some other alkaline solution, such as soda, potash, or lime, which has the effect of destroying the acid which produced the irritation, and thus renders it inert.

Stings—Bee.

If possible, the first thing to do is to extract the sting and then apply an alkali, such as ammonia, bi-carbonate of soda, bi-carbonate of potash, or lime, which substances have an affinity for the formic, which is the essential constituent of the sting, and thus its virulence is destroyed.

Stomach—Acid.

Prepared chalk, to be found always at druggists', is an excellent remedy for this complaint, and all the unpleasant headaches and sickness to which it gives rise. This is one form of dyspepsia, and is sometimes relieved by the use of this simple remedy.

Stomach—Acute Inflammation of.

This is a rare disease, and generally comes from irritating and corrosive substances being taken into the stomach. Blows, sudden stoppage of

sweat, and excessive use of ardent spirits, may also excite it. The symptoms are, a burning pain in the stomach, thirst, restlessness, anxiety, constant vomiting, prostration of strength, quick, hard and small pulse, incessant retching, a sunken countenance, hiccough, cold hands and feet, and a damp skin.

Treatment.—If the inflammation be excited by poison, the remedies named under antidotes for poisons, must be first employed. The poison being neutralized or thrown off, the inflammatory condition must be combated with the remedies usual for such states. Mustard-poultices to the feet, along the spine, and over the pit of the stomach, will be among the first things resorted to, and should be followed by hot fomentations with stramonium-leaves or hops, repeating these applications as long as required. For drinks, give rice-water, toast-water, arrow-root gruel, slippery-elm infusion, and cold water. These should be taken in very small quantities—a teaspoonful at a time—about twenty drops of tincture of aconite-root being added to half a tumblerful. Lumps of ice held to the mouth, or occasionally swallowed, may be useful. Neither physics nor emetics are proper now, but injections of simple soapsuds will be required. The remedies must be followed up till the tenderness of the stomach is all gone. Be very careful not to overload the stomach before perfect recovery has taken place. Only the simplest and most cooling diet can be used during a period of recovery.

Stomach—Chronic Inflammation of.

This is known by a pain in the stomach, increased by the presence of food, by belching up gas, by vomiting, fickle appetite, season of thirst,

tongue white in the centre and red at the tip, or sometimes red and smooth, is a disease which sometimes ends by ulceration of the stomach, and death.

Treatment.—Counter-irritants over the stomach, as in acute inflammation, frequent warm or cold baths, according to the patient's constitution; a cold compress worn on the stomach at night; and the most careful diet, consisting mostly of gum-water rice-water, arrow-root gruel, toast without butter, etc. In two or three weeks, the disease will yield, under the persistent starving and cooling system.

Stomachic.—Take twenty grains of powdered rhubarb, and rub it down in three ounces and a half of peppermint water, then add sal volatile and compound tincture of gentian each one drachm and a half; mix. Dose, from one to one ounce and a half. Use this mixture as a tonic, stimulant, and stomachic.

Stomachic and Tonic.—Take one ounce of the freshly-rasped rind of orange, and mix it with three ounces of white sugar, and beat it till perfectly incorporated. Dose, from one drachm to an ounce. Use as a gentle stomachic and tonic, and as a vehicle for administering tonic powders.

Strictures.

A difficulty in passing water, which, instead of flowing in a full stream, either dribbles away, twists like a corkscrew, or splits and forks in two or three directions.

Treatment.—Procure several bougies of different sizes. Take the largest one, dip it in sweet oil, and pass it into the urethra till it meets with the stricture, then make a mark on the bougie, so that when it is withdrawn you can tell how far down the passage the obstruction exists, and hav-

ing ascertained this, take the smallest one, well oiled, and endeavor to pass it an inch or two beyond the stricture. If this can be accomplished, let it remain so a few minutes. This must be repeated every day, letting the instrument remain somewhat longer each time it is passed, and after a few days using one a little larger, and so on progressively until the largest one can be introduced. If this fails, apply to a surgeon, who may destroy it with caustic or the knife.

Suffocation from Noxious Gases, Etc.

Remove to the fresh air; dash cold vinegar and water in the face, neck, and breast; keep up the warmth of the body; if necessary, apply mustard poultices to the soles of the feet and spine, and try artificial respiration, as in drowning, with electricity.

Sunburn—Wash for.

Take two drachms of borax, one drachm of Roman alum, one drachm of camphor, half an ounce of sugar-candy, and a pound of ox-gall. Mix and stir well for ten minutes or so, and repeat this stirring three or four times a day for a fortnight, till it appears clear and transparent. Strain through blotting paper, and bottle up for use.

Sunstroke, or Heat Apoplexy.

Sunstroke, or heat apoplexy, is a congestion of the brain produced by the heat of the sun. The effects of sunstroke are frequently very serious, and often have a fatal result. In every instance the nervous system is so seriously affected that complete prostration and insensibility take place at the same time. These, if death does not result, invariably leave the mind in an unhealthy condition, in many instances giving rise to a form of insanity or mania which may

be permanent, although in many cases it may be recovered from. Individuals of intemperate habits are much more liable to this affection than those who live a temperate life. Constipation is also a condition which superinduces sunstroke; it is therefore imperative that those who are resident or traveling in hot countries abstain from over-indulgence in alcoholic stimulants, and at the same time be careful that the bowels are satisfactorily evacuated every day. The greatest precautions must be taken to shelter the head from the action of the sun by suitable head-gear. Cold baths and exercise in the open air in the early morning are also considered to be preventive of an attack, while the body should be clothed in flannel, and the dress, as well as the covering of the head, made of a material devoid of color, so that the sun's rays may be reflected instead of absorbed.

Symptoms.—The symptoms of sunstroke often come on very insidiously. They commence as a rule with headache, giddiness, general prostration, accompanied by sickness and vomiting. The skin becomes hot and dry, the pulse quick at times, but at other times it may be unusually slow, in consequence of the great nervous prostration that exists. The bowels become more than usually costive and the urine deficient in quantity, while there is excessive thirst and high temperature. After these symptoms have continued for some time the breathing becomes oppressed and rapid, and the action of the heart tumultuous or palpitating, after which gradual or sudden unconsciousness will supervene. When this state becomes developed the eyes are blood-shot and the pupils contracted, the face pale, and the surface of the body dry and hot, after which convulsions

may set in and the patient succumb. When death is near the pulse becomes intermittent, the breathing stertorous, and the pupils dilated. When recovery takes place there is always a tendency to some affection of the nervous apparatus, which may take the form of temporary paralysis, convulsions, or some form of insanity. The greatest variability as to the duration of the symptoms frequently exists—in some cases death has taken place within an hour or two of the attack, while it may occur at a much longer interval.

The Treatment.—The treatment of the disease consists in first of all having the bowels thoroughly well evacuated simultaneously with the application of ice to the head, or the cold douche if the patient can bear it. It may also be necessary to extract blood by venesection or cupping from the nape of the neck, while the head should be shaved and a fly blister applied to the nape of the neck and over the base of the brain. Blood should be drawn towards the extremities and trunk of the body by means of mustard poultices, while strong tea or coffee, together with ammonia, should be administered to counteract the depressing effects which have resulted, and if there is any difficulty in swallowing these should be administered by means of the enema, while, to act as a rapid stimulant, ether may be injected under the skin. A great many theories have been advanced as to the cause of sunstroke—some of these being that it is largely due to the atmosphere being highly charged with electricity, while others hold that it is the direct effect of the sun acting perpendicularly. It is a strange circumstance that sunstroke seldom occurs in mid-ocean, although it is very liable to produce its effects in narrow seas and close to land.

Sunstroke—To Avoid.

There is something to be remembered by those most liable to sunstroke. Sobriety is a great preventive. The man who abstains from all spirituous drinks during excessively hot weather is vastly less liable to sunstroke than he who drinks habitually. Regular hours for sleep and meals, and the avoidance of all irregularities and excesses, are among the other preventives. Bathing, washing, or sponging the skin all over in the morning is a wholesome precaution. Every one employed out doors, that can possibly do it, should wear a light, easy-fitting, broad-brimmed hat. Brick-layers, carpenters, laborers, mortar-makers, hod-carriers, and all others working in the sun, should have some kind of shed or shade handy, where they can rest for a few minutes at short intervals of half an hour or so. People otherwise engaged on the streets, or who have to go about on business, should be careful to keep on the shady side, to look well to their head gear, so as to insure that which is light and porous, and those who have leisure should carry sun-umbrellas.

Surgery—Domestic.

This will comprise such hints and advice as will enable any one to act in an emergency, or in ordinary trivial accidents requiring simple treatment; and also to distinguish between serious and simple accidents, and the best means to adopt in all common cases. These hints will be of the utmost value to heads of families, and to persons who are frequently called upon to attend the sick. We strongly recommend the parent to read over these directions occasionally—to regard it as a duty to do so at least three or four times a year, so as to be prepared for emergencies whenever they may arise. When accidents occur, people are too

excited to acquire immediately a knowledge of what they should do; and many lives have been lost for want of this knowledge. Study, therefore, at moderate intervals, the Domestic Surgery, Treatment of Poisons, Rules for the Prevention of Accidents, How to Escape from Fires, the Domestic Pharmacopœia, etc., which will be found in various pages of this work. And let it be impressed upon your mind that the index will enable you to refer to anything you may require in a moment. Don't try to hunt through the pages.

Surgical Dressings.

These are substances usually applied to parts for the purpose of soothing, promoting their reunion when divided, protecting them from external injuries, absorbing discharges, protecting the surrounding parts, insuring cleanliness, and as a means of applying various medicines.

Surgery—Instruments Required.

Scissors, a pair of tweezers or simple forceps, a knife, needles and thread, a razor, a lancet, a piece of lunar caustic in a quill, and a sponge.

Surgical Dressings—Materials for.

These consist of lint, scraped linen, absorbent cotton, tow, ointment spread on muslin, adhesive plaster, compresses, pads, bandages, poultices, old rags of linen or muslin, and water.

Always prepare the new dressing before removing the old one.

Always have hot and cold water at hand, and a vessel to place the foul dressings in.

Have one or more persons at hand ready to assist, and, to prevent confusion, tell each person what he is to do before you commence; thus, one is to wash out and hand the sponges, another to heat the adhesive plaster, or hand the bandages and dressings and

if requisite, a third to support the limb, etc.

Always stand on the outside of a limb to dress it.

Place the patient in as easy a position as possible, so as not to fatigue him.

Surgical Dressings—Rules in Applying.

Arrange the bed after changing the dressings, but in some cases you will have to do so before the patient is placed on it.

Never be in a hurry when applying dressings; do it quietly.

When a patient requires moving from one bed to another, the best way is for one person to stand on each side of the patient, and each to place an arm behind his back, while he passes his arms over their necks, then let their other arms be passed under his thighs, and by holding each other's hands the patient can be raised with ease, and removed to another bed. If the leg is injured, a third person should steady it; and if the arm, the same precaution should be adopted. Sometimes a stout sheet is passed under the patient and by several people holding the sides, he is lifted without any fatigue or much disturbance.

Surgical Lint—How Made.

This may be quickly made by nailing a piece of old linen on a board, and scraping its surface with a knife. It is used either alone or spread with ointment. Scraped lint is the fine filaments from ordinary lint, and is used to stimulate ulcers and absorb discharges; it is what the French call *charpie*.

Surgical Uses of Scraped Lint.

This is made into various shapes for particular purposes. When it is screwed up into a conical or wedge like shape, it is called a *tent*, and is used to dilate fistulous openings, so as to

allow the matter to escape freely, and to plug wounds so as to promote the formation of a clot of blood, and thus arrest bleeding. When rolled into little balls, called boulettes, it is used for absorbing matter in cavities, or blood in wounds. Another useful form is made by rolling a mass of scraped lint into a long roll, and then tying it in the middle with a piece of thread; the middle is then doubled and pushed into a deep-seated wound, so as to press upon the bleeding vessel, while the ends remain loose and assist in forming a clot; or it is used in deep-seated ulcers to absorb the matter and keep the edges apart. This form is called the *bourdonnet*. Another form is called the *pelote*, which is merely a ball of scraped lint tied up in a piece of linen rag, commonly called a *dabber*. This is used in the treatment of protrusion of the navel in children.

Surgery—Absorbent Cotton for.

Absorbent cotton is used as a dressing for superficial burns, and care should be taken to free it from specks, as flies are apt to lay their eggs there, and generate maggots. It is often used in medicated form when it makes an excellent surgical dressing.

Surgery—Tow in.

Tow is chiefly employed as a padding for splints, as a compress, and also as an outer dressing where there is much discharge from a surface.

Surgical Ointments.

Ointments are spread on muslins, lint, or even thin layers of tow, by means of a knife; they should not be spread too thick. Sometimes ointment is applied to discharging surfaces on a piece of linen, folded over on itself several times, and then cut at the corners with scissors, in order to make small holes in it. The matter discharged passes through these holes,

and is received in a layer of tow spread over the linen.

Surgical Adhesive Plaster.

Adhesive plaster is cut into strips, ranging in width, according to the nature of the wound, etc., but the usual width is about three-quarters of an inch. Isinglass plaster is not so irritating as diachylon, and is more easily removed.

Surgical Compresses.

Compresses are made of pieces of linen, muslin, lint, or tow, doubled or cut into various shapes, according to the purposes for which they are required. They are used to confine dressings in their places, and to apply an equal pressure on parts. They should be free from darns, hems and knots. Ordinary compresses are square, oblong and triangular. Compresses are also graduated by placing square pieces of folded cloth on one another, so arranged that they decrease in size each time. They are used for keeping up pressure upon certain parts.

Surgical Pads.

Pads are made by sewing tow inside pieces of linen, or folding linen and sewing the pieces together. They are used to keep off pressure from parts such as that caused by splints in fractures.

Surgical Poultices.

Poultices are usually made of linseed meal, oatmeal, or bread, either combined with water or other fluids; sometimes they are made of carrots, charcoal, potatoes, yeast, and linseed meal, mustard, etc., but the best and most economical method of preparing them is with a fabric called "*Spongio Piline*."

Spongio Piline for Poultices.—This material is made of sponge and wool felted together, and backed by India

rubber. The method of using is as follows: A piece of the material of the required form and size is cut off, and the edges are pared and beveled off with a pair of scissors, so that the caoutchouc may come in contact with the surrounding skin, in order to prevent evaporation of the fluid used; for, as it only forms the vehicle, the various poultices generally used can be employed with much less expenditure of time and money, and increased cleanliness. For example—a vinegar poultice is made by moistening the fabric with distilled vinegar; an alum poultice, by using a strong solution of alum; a charcoal poultice, by sprinkling powdered charcoal on the moistened surface of the material; a yeast poultice, by using warmed yeast, and moistening the fabric with hot water, which is to be well squeezed out previous to the absorption of the yeast; a beer poultice by employing warm porter-dregs or strong beer as the fluid; and a carrot poultice by using the expressed and evaporated liquor of boiled carrots. Spongio piline costs about one cent a square inch and may be obtained of the druggist. As a fomentation it is most invaluable, and by moistening the material with compound camphor liniment or harts-horn, it acts the same as a mustard poultice.

Mustard Poultices.—These may be made of the mustard powder alone, or in combination with bread crumbs, or linseed meal. When mustard only is used, the powder should be moistened with water, and the paste thus produced spread on a piece of linen, and covered with muslin to intervene between the mustard and the skin. When mixed with linseed the powder and the meal may be incorporated before water is added, or the meal may be moistened and spread on linen for application, and the mustard be then

sprinkled on the surface, more or less thickly according to the age of the patient.

Surgical Bandages.

Bandages are strips of linen, flannel, muslin, elastic webbing, bunting, or some other substance, of various lengths, and from one to six inches wide, free from hems or darns, soft and unglazed. They are better after they have been washed. Their uses are to retain dressings, apparatus, or parts of the body in their proper positions, support the soft parts, and maintain equal pressure.

Bandages, Simple and Compound.—

The former are single strips rolled up tightly like a roll of ribbon. Sometimes it is rolled from both ends and is called a double headed bandage. The compound bandages are formed of many pieces.

Sizes of Bandages.—Those for the head should be two inches wide and five yards long; for the neck, two inches wide and three yards long; for the arm, two inches wide and seven yards long; for the leg, two inches and a half wide and seven yards long; for the thigh, three inches wide and eight yards long; and for the body, four or six inches wide and ten or twelve yards long.

To Apply a Single-Headed Bandage lay the outside of the end near to the part to be bandaged, and hold the roll between the little, ring, and middle fingers and the palm of the left hand, using the thumb and forefinger of the same hand to guide it, and the right hand to keep it firm, and pass the bandage partly round the leg towards the left hand. It is sometimes necessary to reverse this order, and therefore it is well to be able to use both hands. Particular parts require a different method of applying bandages, and therefore it is necessary to de-

scribe the most useful separately; and there are different ways of putting on the same bandage, which consist in the manner the folds or turns are made. For example, the circular bandage is formed by horizontal turns, each of which overlaps the one made before it; the spiral consists of spiral turns; the oblique follows a course oblique or slanting to the center of the limb; and the recurrent folds back again to the part whence it started.

Circular Bandages are used for the neck, to retain dressings on any part of it, or for blisters, setons, etc.; for the head, to keep dressings on the forehead or any part contained within a circle passing round the head; for the arm, previous to bleeding; for the leg, above the knee; and for the fingers, etc.

To Confine the Ends of Bandages some persons use pins, others slit the end for a short distance, and tie the two strips into a knot, and some use a strip of adhesive plaster. Always place the point of a pin in such a position that it cannot prick the patient, or the person dressing the limb, or be liable to be drawn out by using the limb; therefore, as a general rule, turn the head of the pin from the free end of the bandage, or towards the upper part of the limb. The best mode is to sew the bandage on. A few stitches will hold it more securely than pins can.

The Oblique Bandage is generally used for arms and legs, to retain dressings.

The Spiral Bandage is generally applied to the trunk and extremities, but is apt to fall off even when very carefully applied; therefore the recurrent bandage, which folds back again, is generally used.

The Reversing or Recurrent Bandage is the best kind of bandage that we can employ for general purposes.

The method of putting it on the leg is as follows:—Apply the end of the bandage that is free, with the outside of it next the skin, and hold this end with the finger and thumb of the left hand, while some one supports the heel of the patient; then with the right hand pass the bandage over the piece you are holding, and keep it crossed thus, until you can place your right forefinger upon the spot where it crosses the other bandage, where it must be kept firm. Now hold the roll of the bandage in your left hand, with the palm turned upwards, and taking care to keep that part of the bandage between your right forefinger and the roll in your left hand quite slack; turn your left hand over, and bring the bandage down upon the leg; then pass the roll under the leg towards your right hand, and repeat this until the leg is bandaged up to the knee, taking care not to drag the bandage at any time during the process of bandaging. When you arrive at the knee, pass the bandage round the leg in circles just below the knee, and pin it as usual. Bandaging is very easy, and if you once see any one apply a bandage properly, and attend to these rules, there will not be any difficulty; but bear one thing in mind, without which you will never put on a bandage even decently: and that is, never to drag or pull at a bandage, but make the turns while it is slack, and you have your right forefinger placed upon the point where it is to be folded down. When a limb is properly bandaged, the folds should run in a line corresponding to the shin-bone. Use, to retain dressings, and for varicose veins.

A Bandage for the Chest is always placed upon the patient in a sitting posture; and it may be put on in circles, or spirally. Use, in fractures of the ribs, to retain dressings, and after severe contusions.

A Bandage for the Belly is placed on the patient as directed for the chest, carrying it spirally from above downwards. Use, to compress belly after dropsy, or retain dressings.

The Hand is Bandaged by crossing the bandage over the back of the hand. Use, to retain dressings.

A Bandage for the Head may be circular, or spiral, or both; in the latter case, commence by placing one circular turn just over the ears; then bring down from left to right, and round the head again, so as to alternate a spiral with a circular turn. Use, to retain dressings on the head or over the eye; but this form soon gets slack. The circular bandage is the best, crossing it over both eyes.

Bandage for the Foot.—Place the end just above the outer ankle, and make two circular turns, to prevent its slipping; then bring it down from the inside of the foot over the instep towards the outer part; pass it under the sole of the foot, and upwards and inwards over the instep towards the inner ankle, then round the ankle and repeat again. Use, to retain dressings to the insteps, heel, or ankle.

Bandage for Leg and Foot.—Commence and proceed as directed in the preceding paragraph; then continue it up the leg as ordered in the Recurrent Bandage.

Surgical Bandages—Handkerchiefs as.

As it sometimes happens that it is necessary to apply a bandage at once, and the materials are not at hand, it is desirable to know how to substitute something else that any one may apply with ease. This can be readily done with handkerchiefs. Any ordinary handkerchief will do; but a square of linen folded into various shapes answers better. The shapes generally required are as follows:—The Triangle,

the Long Square, the Cravat, and the Cord.

The Triangular Handkerchief is made by folding it from corner to corner. Use, as a bandage for the head. Application: Place the base round the head, and the short part hanging down behind, then tie the long ends over it.

The Long Square is made by folding the handkerchief in three. Use, as a bandage to the ribs, belly, etc. If one handkerchief is not long enough, sew two together.

The Cravat is folded as usual with cravats. Use, as a bandage for the head, arms, legs, feet, neck, etc.

The Cord is used to compress vessels, when a knot is made in it, and placed over the vessel to be compressed. It is merely a handkerchief twisted in its diagonal.

Two or More Handkerchiefs must sometimes be applied, as in a broken collar-bone, or when it is necessary to keep dressings under the arm. The bandage is applied by knotting the opposite corners of one handkerchief together, and passing the left arm through it, then passing another handkerchief under the right arm, and tying it. By this means we can brace the shoulders well back, and the handkerchief will press firmly over the broken collar-bone: besides, this form of bandage does not readily slip or get slack, but it requires to be combined with the sling, in order to keep the arm steady.

For an Inflamed Breast that requires support, or dressing to be kept to it, pass one corner over the shoulder, bring the body of it over the breast, and pass it upwards and backwards under the arm of that side, and tie the opposite corners together.

An Excellent Sling is formed by placing one handkerchief around the

neck, and knotting opposite corners over the breast bone, then placing the other in triangle under the arm to be supported, with the base near the hand; tie the ends over the handkerchief, and pin the top to the other part, after passing it around the elbow.

Apparatus to Relieve Pressure of Bed-Clothes.

When a person receives a severe contusion of the leg or foot, or breaks his leg, or has painful ulcers over the leg, or is unable from some cause to bear the pressure of the bed-clothes, it is advisable to know how to keep them from hurting the leg. This may be done by bending up a fire-guard, or placing a chair, resting upon the edge of its back and front of the seat, over the leg, or putting a box on each side of it, and placing a board over them, or using a handbox minus its lid and bottom; but the best way is to make a cradle, as it is called. This is done by getting three pieces of wood and three pieces of iron ware, and passing the wire or hoop through the wood. This can be placed to any height, and is very useful in all cases where pressure cannot be borne. Wooden hoops cut in halves answer better than the wire.

Surgical Splints—Extemporized.

When a person breaks his leg or arm and splints cannot be had directly, get bunches of straw or twigs, roll them up in handkerchiefs, and placing one on each side of the leg or arm, bind another handkerchief firmly around them; or make a long bag about three inches in diameter, or even more, of coarse linen duck, or carpet, and stuff this full of bran, sawdust, or sand, sew up the ends, and use this the same as the twigs. It forms an excellent extemporaneous splint. A still better splint or set of splints can be extemporized by cut-

ting a sheet of thick pasteboard into proper sized slips, then passing each piece through a basin of hot water to soften it. It is then applied to the fractured limb like an ordinary splint, when it hardens as it dries, taking the exact shape of the part to which it is applied.

Surgery—To Apply Dry Warmth in.

To apply dry warmth to any part of the body warm some sand or bran and place in the patient's socks, and lay it to the part; salt put into a paper bag does as well; or warm water put into a stone jar, and rolled up in flannel. Of course a rubber water-bag is best. They can be purchased at any drugstore and at most department stores.

Sweat, or Perspiration.

Sweat, or perspiration, is the fluid which is thrown off by the skin, and is invariably a healthy symptom when it is not excessive. In certain diseases, however, such as consumption, if it is too copious, it forebodes very grave symptoms. When the skin ceases to act it is invariably a symptom of high fever, and it should be the aim of the medical attendant to induce perspiration by, first of all, lowering the temperature and keeping the body warm, at the same time administering diaphoretics.

Sweating—Profuse.

An old remedy for excessive sweating is cold sage tea. It is made by taking a large teaspoonful of chopped sage leaves, and boiling them in six ounces of water for two or three minutes. The decoction is then left to stand and cool, and is strained and sweetened to the taste. This remedy has been used with benefit in the colliquative sweating, as it is called, of pulmonary consumption.

Sweating—To Produce.

Pour alcohol into a saucer, to about half fill it; place this under a chair; strip the person, to be sweated, of all clothing, and place him in the chair, putting a comforter over him, also; now light a match and throw into the saucer of alcohol, which sets it on fire, and by the time the alcohol is burned out he will be in a profuse perspiration, if not, put in half as much more of alcohol and fire it again, which will accomplish the object; then let him rise and draw the comforter around him, and get into bed, following up with hot teas and sweating drops.

Swelling.

Swelling is an increase of the size of various textures of the body, and may consist either of fluid or solid matter. In the former case it is caused by a congestion of some of the tissues either immediately concerned or in some neighboring tissue, and invariably arises from an oozing taking place from the veins of the part or parts. Swelling of the leg, for instance, in dropsy arises from some impediment to the flow of blood towards the heart, and usually indicates disease of a very great nature, either affecting the kidney, liver, or heart. If in the abdomen, when it is named "ascites," it usually depends upon some obstruction of the circulation due to serious disease of one or other of the above-mentioned organs. When the swelling takes place on the surface of the body it usually contains pus, and may assume the nature of an abscess, carbuncle, or boil. Swelling may also arise from the infiltration of air within the cellular tissue of the body, and tumors are another cause of this affection. (See Tumors, Dropsy, Abscesses, etc.)

Swelling—White.

Dr. Kirkland recommends a volatile plaster for this disease, made after the

following manner: Melt together in an iron ladle, or earthen dish, two ounces of soap and half an ounce of litharge plaster. When nearly cold, stir in one drachm of sal ammoniac, in fine powder; spread upon leather and apply to the joint. If the above method fail, and ulceration take place, a surgeon should be applied to without delay.

Swine-pox.

Swine-pox is a variety of chicken-pox and is characterized by vesicles very similar in appearance to those of chicken-pox.

Swoon, or Fainting.

Swoon, or fainting, usually arises from some mechanical or nervous condition affecting the heart's action. The patient should therefore be laid in the horizontal position, and cold applied to the forehead, together with the fumes of ammonia to the nostrils, and when the patient is able to swallow, a little sal-volatile or brandy mixed with water should be administered.

Symptoms.

Symptoms, as applied to medicine, are those conditions which enable the physician to make his diagnosis. They are said to be subjective and objective—in the former the symptoms being described by the patient himself, whereas in the latter they are arrived at by examination made by the physician. Among the former may be mentioned pain and the various sensations which the patient experiences in the progress of disease; in the latter the physician obtains information by the use of the speculum, sphygmograph, stethoscope, and chemical tests applied to the urine, etc. It is always wise in endeavoring to diagnose disease to go regularly to work, inquiring in a methodical manner the various train of symptoms that follow

upon the supposed cause of the disease. In many instances it will be necessary to treat symptoms with a view of ascertaining their origin, and at the same time relieving them without necessarily curing the disease. This plan of action is specially necessary in malignant diseases where a cure is possible. In every instance, however, the symptoms should be so focussed as to enable the physician or surgeon to come to a correct conclusion as to the nature of the disease, with a view to having it removed. (Refer to Diagnosis.)

Tan—To Remove.

Tan may be removed from the face by mixing magnesia in soft water to the consistency of paste, which should then be spread upon the face and allowed to remain a minute or two. Then wash off with Castile soap suds, and rinse with soft water.

Teeth—Care of.

The mouth has a temperature of ninety-eight degrees, warmer than is ever experienced in the shade in the latitude of New England. It is well known that if beef, for example, be exposed in the shade during the warmest of our summer days, it will very soon begin to decompose. If we eat beef for dinner, the particles invariably find their way into the spaces between the teeth. Now if these particles of beef are not removed they will frequently remain till they are softened by decomposition. In most mouths this process of decomposition is in constant progress. Ought we to be surprised that the gums and teeth against which these decomposing or putrefying masses lie should become subjects of disease?

How shall our teeth be preserved? The answer is very simple—keep them clean! How shall they be kept clean?

Answer: by a tooth-pick, rinsing with water, and the daily use of a brush.

The tooth-pick should be a quill, not because the metallic picks injure the enamel, but because the quill pick is so flexible it fits into all the irregularities between the teeth.

Always after using the tooth-pick the mouth should be thoroughly rinsed. If warm water be not at hand, cold may be used, although the warm is much better. Closing the lips, with a motion familiar to all, everything may be thoroughly rinsed from the mouth.

Every morning (on rising) and every evening (on going to bed) the tooth-brush should be used, and the teeth, both outside and inside, thoroughly brushed.

Much has been said, pro and con., upon the use of soap with the tooth-brush. My own experience and the experience of members of my family is highly favorable to the regular morning and evening use of soap. Castile or other good soap will answer this purpose. (Whatever is good for the hands and face is good for the teeth). The slightly unpleasant taste which soap has when we begin to use it will soon be unnoticed. Instead of brushing the teeth from side to side, hold your brush in the ordinary manner and brush up and down. This method, after a little practice, will be found superior in every way. The bristles work between the teeth but never lacerate the gums.

Teeth—To Beautify.

Dissolve two ounces of borax in three pints of boiling water, and before it is cold add one teaspoonful of the spirits of camphor, and bottle for use. A tablespoonful of this mixture, with an equal quantity of tepid water, and applied daily with a soft brush, preserves and beautifies the

teeth, extirpates all tartarous adhesion, arrests decay, induces a healthy action of the gums, and makes the teeth pearly white.

Teeth—Cements for.

Mix 12 parts of dry phosphoric acid with 13 parts of pure and pulverized quicklime. It becomes moist in mixing, in which state it is introduced into the cavity of the tooth, where it quickly becomes hard.

Another.—Digest 9 parts of powdered mastic with 4 parts of ether, and add enough powdered alum to form a stiff paste.

Another.—Gutta-percha softened by heat, is recommended. Dr. Rollfs advises melting a piece of caoutchouc at the end of a wire, and introducing it while warm.

Metallic.—Amalgams are made with gold or silver, and quicksilver, the excess of the latter being squeezed out, and the stiff amalgam used warm. Inferior kinds are made with quicksilver and tin, or zinc. A popular nostrum of this kind consists of 40 grains of quicksilver and 20 of fine zinc filings, mixed at the time of using. The following is said to be the most lasting and least objectionable amalgam: Melt 2 parts of tin with 1 of cadmium, run it into an ingot, and reduce it to filings. Form these into a fluid amalgam with mercury, and squeeze out the excess of mercury through leather. Work up the solid residue in the hand, and press it into the tooth. Another cement consists of about 73 parts of silver, 21 of tin, and 6 of zinc, amalgamated with quicksilver.

Teeth (Loose)—To Fasten.

To fasten loose teeth and strengthen the gums: Dissolve an ounce of myrrh as much as possible in a pint of port wine, and the same quantity of oil of

almonds; wash the mouth with this fluid every morning.

Teeth and Gums—Wash for.

The teeth should be washed night and morning, a moderately small soft brush being used; after the morning ablution pour on a second tooth-brush, slightly damped, a little of the following lotion. Carbolic acid, 20 drops; spirit of wine, 2 drachms; distilled water, 6 ounces. After using this lotion for a short time the gums become firmer and less tender, and impurity of the breath (which is most commonly caused by bad teeth) will be removed. It is a great mistake to use hard tooth-brushes, or to brush the teeth until the gums bleed.

The Teeth—Wash for.

Dissolve two ounces of borax in three pints of water; before quite cold, add thereto one teaspoonful of tincture of myrrh, and one tablespoonful of spirits of camphor; bottle the mixture for use. One wineglassful of the solution, added to half a pint of tepid water, is sufficient for each application. This solution, applied daily, preserves and beautifies the teeth, removes tartar, produces a pearl-like whiteness, arrests decay, and induces a healthy action in the gums.

Tooth Powders.

Many persons, while laudably attentive to the preservation of their teeth, do them hurt by too much powder, which they rub so hard as not only to injure the enamel by excessive friction, but to hurt the gums even more than by the abuse of the tooth-pick. The quality of some of the dentifrice powders advertised in newspapers is extremely suspicious, and there is reason to think that they are not altogether free from a corrosive ingredient. One of the safest and best compositions for the purpose is a

mixture of two parts of prepared chalk, one of Peruvian bark, and one of hard soap, all finely powdered, which is calculated not only to clean the teeth without hurting them, but to preserve the firmness of the gums.

Beside the advantage of sound teeth for their use in mastication, a proper attention to their treatment conduces not a little to the sweetness of the breath. This is, indeed, often affected by other causes existing in the lungs, the stomach, and sometimes even in the bowels, but a rotten state of the teeth, both from the putrid smell emitted by carious bones and the impurities lodged in their cavities, never fails of aggravating an unpleasant breath wherever there is a tendency of that kind.

Take powdered charcoal and white sugar of each 1 ounce; Peruvian bark $\frac{1}{2}$ an ounce, cream of tartar $1\frac{1}{2}$ drachms, carnella 24 grains. Rub them well together and pulverize in a mortar. The above powder will cleanse the teeth, strengthen the gums, sweeten the breath, and prevent the toothache.

Another.—Take precipitated chalk an ounce, of vitriolated tartar and mastic of each 1 drachm, oil of rhodium 2 drops. Mix all into a fine powder.

Antiseptic.—Prepared chalk 2 ounces, dry chloride of lime 10 grains, oil of cloves 5 drops. It may be colored, if preferred, by a little levigated bole.

Anti-scorbutic.—Extract of rhatany $\frac{1}{2}$ ounce, prepared charcoal 2 ounces, cinnamon $\frac{1}{4}$ ounce, cloves $\frac{1}{4}$ ounce.

Rhatany.—Rhatany root 2 ounces, cuttle-fish bone 4 ounces, prepared chalk 8 ounces, borax 1 drachm

Violet.—Orris root 2 ounces, cuttle-fish bone 4 ounces, precipitated chalk 12 ounces, bicarbonate of soda $\frac{1}{2}$ ounce, essence of violets 1 drachm, and rose pink enough to give it a pale violet color.

Charcoal.—Prepared charcoal 1 ounce, sugar 1 ounce, oil of cloves 3 drops. Mix.

Paste.—Prepared chalk $1\frac{1}{2}$ ounce, alum $\frac{1}{4}$ drachm, bitartrate of potash 1 ounce, cochineal 2 scruples, bicarbonate of potash 1 drachm, orris 1 ounce, syrup 3 ounces, essence of lemon 1 drachm, oil of cloves and essence of bergamotte of each 1 drachm, otto of roses 8 drops. Mix.

Teeth—Camphorated Dentifrice for.

Prepared chalk, one pound; camphor one or two drachms. The camphor must be finely powdered, moisten it with a little spirit of wine, and then intimately mix it with the chalk.

Teeth—Myrrh Dentifrice for.

Mix powdered cuttlefish, one pound; powdered myrrh, two ounces.

Teeth—Quinine Tooth Powder for.

Rose pink, two drachms; precipitated chalk, twelve drachms; carbonate of magnesia, one drachm; quinine (sulphate), six grains. All to be well mixed together.

Tooth-brushes—The Care of.

Do not shut them up closely in a brush tray, or dressing-bag, as it will cause the bristles to acquire an unpleasant smell. After use shake the water out and place them so that they may drain.

Teething, or Dentition.

Dentition is the period during which the teeth impel their way through the gums in infancy. It is always a more or less anxious time, as disturbances of the nervous system and the digestive organs are liable to take place during its progress. It is always desirable to keep the child as much in the fresh air as possible, and to observe that the bowels are kept rather loose than otherwise. If dentition is creating any dis-

turbance, as a rule the matter may be safely left to nature.

The Remedy, or rather the safeguard, against the bad consequences of teething disturbances is easy, safe, and almost certain, and consists merely in lancing the gum covering the tooth which is making its way through. When teething commences it may be known by the spittle constantly dribbling from the mouth and wetting the dress. The child has its fingers often in its mouth, and bites hard any substance it can get hold of. If the gums be carefully looked at, the part where the tooth is pressing up is swollen and redder than usual; and if the finger be pressed on it the child shrinks and cries showing that the gum is tender. When these symptoms occur, the gum should be lanced, and sometimes the tooth comes through the next day, if near the surface; but if not so far advanced the cut heals and a scar forms, which is thought by some objectionable, as rendering the passage of the tooth more difficult. This, however, is untrue, for the scar will give way much more easily than the uncut gum. If the tooth does not come through after two or three days, the lancing may be repeated; and this is more especially needed if the child be very fractious, and seem in much pain. Lancing the gums is further advantageous, because it empties the inflamed part of its blood, and so relieves the pain and inflammation. The relief children experience in the course of two or three hours from the operation is often very remarkable, as they almost immediately become lively and cheerful.

Temperance—The Value of.

Those who live long and maintain a great vigor and efficiency in old age constantly advise temperance. "Moderation in everything," is their cry.

"They that strive for the mastery are temperate in all things."

Tetter.

After a slight feverish attack, lasting two or three days, clusters of small, transparent pimples, filled sometimes with a colorless, sometimes with a brownish lymph, appear on the cheeks or forehead, or on the extremities, and at times on the body. The pimples are about the size of a pea, and break after a few days, when a brown or yellow crust is formed over them, which falls off about the tenth day, leaving the skin red and irritable. The eruption is attended with heat, itching, tingling, fever and restlessness, especially at night. Ringworm is a curious form of tetter, in which the inflamed patches assume the form of a ring. Treatment should consist of a light diet, and gentle laxatives. If the patient be advanced in life, and feeble, a tonic will be desirable. For a wash, white vitriol, one dram, rose-water, three ounces, mixed; or an ointment made of elder-flower ointment, one ounce; oxide of zinc, one drachm.

Tetter—Humid.

This is an eruption of minute, round pimples, about the size of a pin's head, filled with colorless fluid, and terminating in scurf. It is preceded by languor, faintness, perspiration, and a pricking of the skin. Another species of this disease is called sun-heat, which is an eruption of a white or brownish color, which generally terminates in yellow scabs. It occurs only in summer, and affects those parts which are uncovered. In still another species, the eruption is attended with pain, heat, itching, intense smarting, and a swelling of the affected part. When the blisters break, the water runs out, irritates and inflames the skin, which becomes red, rough

and thickened—covered sometimes with a thick crust.

Treatment.—Low diet, cooling drinks, gentle purgatives, and warm baths. In old chronic cases, apply externally either lime-water, or corrosive sublimate in a wash proportioned of five grains to one pint of soft water. In the last two forms of the affection apply nitrate of silver in solution, to the parts.

Tetter—Crusted.

This eruption consists at first of slightly elevated pustules or pimples, closely congregated, with an inflamed border. These break, and the surface becomes red, excoriated, shining, and full of pores, through which a thin, unhealthy fluid is poured out, which gradually hardens into dark, yellowish-green scabs. When this tetter invades the head or scalp, it causes the hair to fall off, and is termed a scald.

Treatment.—Vapor-bath and water-dressing. The crusts should be removed by a weak lye, made from hardwood ashes or potash; then an ointment should be applied, made of mild nitrate of mercury ointment, three drachms; sugar of lead, sixteen grains; rose-water ointment, one ounce.

Sore Throat.

Sore throat may be of several varieties, such as relaxed throat, catarrh of the throat, tonsilitis or quinsy, diphtheria, scarlatina, etc., but in this paragraph quinsy or tonsilitis accompanied by a rheumatic condition of the blood will be specifically considered. As is well known, certain individuals are peculiarly liable to this affection, but invariably these are of a rheumatic diathesis, and the inflammation which exists very frequently develops into an abscess within the tonsils, causing most excruciating pain on any attempt at swallowing,

accompanied by high fever, and liable to be succeeded by acute rheumatism after it has disappeared. It is invariably ushered in by a feeling of shivering, great prostration, and considerable fever, together with a very furred tongue, and constipated state of the bowels.

Treatment.—Whenever quinsy is suspected to be threatening, the best remedy to administer internally is the following: Salicine and chlorate of potash, of each $2\frac{1}{2}$ drachms; guaiacum mixture, 6 ounces—a desert-spoonful to be given every two hours to an adult, and a teaspoonful to a child eight or ten years of age every two hours. At the same time the system should be well kept up by a stimulating and nutritious diet, port wine being especially beneficial, and egg flip, strong chicken soup, beef juice, and plenty of milk being among the most valuable forms in which nutrition can be administered. If these measures are energetically and promptly adopted, the disease will frequently be cut short and an immense amount of suffering prevented, while at the same time the after-effects will be annihilated. It is a great mistake to think that quinsy can be averted by the old-fashioned and obsolete methods of treatment which have been, and at the present day are yet frequently prescribed, such as mustard and linseed meal poultice, blistering gargles, etc. Aconite, however, has been and frequently is employed in the treatment of these affections, and no doubt proves very beneficial when there is no specific disease present. This remedy has many advocates, and no doubt has been specially useful in ordinary congestive attacks of the throat. It, however, simply acts by its effect upon the circulation, thereby reducing the tendency to congestion and favoring resolution without the

inflammation having proceeded to suppuration. Its benefits, however, are not nearly so great as those conferred by the administration of the guaiacum, chlorate of potash, and salicin mixture, before mentioned. With regard to the local applications which are made by means of gargles, these, it must be confessed, have a certain beneficial effect by the astringent properties which they usually possess, while, if combined with some antiseptic, such as sulphurous acid, carbolic acid, or vinegar, they may act directly as destructive agents to the poison which is exerting its influence in the developing of the inflammation, and therefore on this account they are not to be depreciated, but at the same time I would insist that they must not be depended upon. Quinsy, tonsilitis, or sore throat, in any form whatever, is usually secondary to a lowered condition of the vital powers; and this is, as a rule, if not directly due to, dependent for its start upon a constipated condition of the lower bowel.

Sore Throat—Gargles for.

Gargles are, practically, lotions applied to the throat; they may be astringent, antiseptic, or soothing. Astringent gargles, combined with an antiseptic, are useful in all inflammatory affections of the throat in their early stages. If there is much accumulation of mucus in the throat, then a gargle of hot water, in which is dissolved a small quantity of bi-carbonate of soda, acts as a very soothing agent. Chlorate of potash in solution is also a most useful gargle, and when there are ulcerated patches upon the throat this solution of chlorate of potash combined with borax is very efficacious in removing the unhealthy deposits. A good all-around gargle for throat affections is twenty-five to

thirty drops of sulphurous acid mixed with a wine-glassful of warm water and used frequently. Alum dissolved in water makes a good astringent gargle, but the most useful astringent to employ in such circumstances is the glyceride of tannin mixed with water.

Acidulated Gargle.—Mix one part of white vinegar with three parts of honey of roses, and twenty-four of barley water. Use, in chronic inflammation of the throat, malignant sore throat, etc.

Astringent Gargle.—Take two drachms of roses and mix with eight ounces of boiling water, infuse for one hour, strain, and add one drachm of alum and one ounce of honey of roses. Use, for severe sore throat, relaxed uvula, etc.

Alum Gargle.—Dissolve one drachm of alum in fifteen ounces of water, then add half an ounce of syrup and one drachm of diluted sulphuric acid. Use as an astringent.

Myrrh Gargle.—Add six drachms of tincture of myrrh to seven ounces of infusion of linseed, and then add one drachm of diluted sulphuric acid. Use as a detergent.

Gargle for Slight Inflammation of the Throat.—Add one drachm of sulphuric ether to half an ounce of syrup of marsh-mallow, and six ounces of barley water. This may be used frequently.

Gargle for Inflamed Throat.—Purified nitre 2 drachms, barley water 7 ounces, acetate of honey 7 drachms. Mix the ingredients, and use frequently.

Gargle for Domestic Use.—Three teaspoonfuls of vinegar, 2 teaspoonfuls of tincture of myrrh, 2 of honey, a glass of port wine, and 3 or 4 wine-glasses of warm water; mix all these ingredients, and the gargle is ready

for use. A decoction of the leaves of the currant may, with good effect, be added instead of the warm water. This makes both a pleasant and useful gargle.

Sore Throat and Ulceration of Mouth.

Alum Confection.—Mix two scruples of powdered alum with four scruples of syrup. Dose, half a drachm. Use as astringent in sore throat, relaxed uvula, and ulcerations of mouth.

Sore Throat Liniment.

Gum camphor, 2 ounces, Castile soap shaved fine 1 drachm, oil of turpentine 1 tablespoonful, oil of origanum $\frac{1}{2}$ of an ounce, opium $\frac{1}{4}$ of an ounce, alcohol 1 pint. In a week or 10 days it will be fit for use; then bathe the parts freely 2 or 3 times daily until relief is obtained.

Sore Throat—Other Remedies for.

In slight cases a gargle composed of hydrochloric acid, two drams; water, six drams; and decoction of Peruvian bark, four ounces.

Another.—Pour a pint of boiling water upon twenty-five or thirty leaves of common sage; let the infusion stand for half an hour. Add vinegar sufficient to make it moderately acid, and honey, according to the taste. This combination of the astringent and the emollient principle seldom fails to produce the desired effect. The infusion must be used as a gargle several times a day. It has this advantage over many gargles—it is pleasant to the taste, and may be swallowed occasionally, not only without danger, but with advantage.

Another.—Dissolve a teaspoonful of chlorate of potash in a tumbler of water and gargle with it. It is nearly tasteless, and not at all offensive to take, and well adapted to children.

Sore Throat—Clergyman's.

Clergyman's sore throat is a peculiar condition of the throat and larynx, the effect of prolonged use of the voice and straining of the vocal chords. It is characterized by hoarseness and catarrh of the mucous membrane, the voice loses its normal tone and not unfrequently disappears altogether. It is generally associated with a rheumatic constitution. The proper treatment is rest, and repeated inhalations of creosote, eucalyptus, or pumuline in the vapor of steam. The general system should at the same time receive tonic treatment. The application of electricity to the throat has also proved of immense service. The best internal remedy is the glycerite of tar, combined with minute doses of arsenic.

Tic-Douloureux—To Cure.

Take half a pint of rose-water, add two teaspoonfuls of white vinegar, to form a lotion. Apply it to the part affected three or four times a day. It requires fresh linen and lotion each application; this will, in two or three days, gradually take the pain away. (See also "Neuralgia.")

Toe-Nails—Ingrowing.

This most painful of the diseases of the nails is caused by the improper manner of cutting the nail (generally of the great toe), and then wearing a narrow, badly-made shoe. The nail beginning to grow too long, and rather wide at the corners, is often trimmed around the corner, which gives temporary relief. But it then begins to grow wider in the side where it was cut off; and, as the shoe presses the flesh against the corner, the nail cuts more and more into the raw flesh, which becomes excessively tender and irritable. If this state continue long, the toe becomes more and more painful and ulcerated, and fungus (proud

flesh) sprouts up from the sorest points. Walking greatly increases the suffering, till positive rest becomes indispensable.

Treatment.—We omit all modes of cutting out the nail by the root, and all other cutting or torturing operations. Begin the effort at cure by simple application to the tender part of a small quantity of perchloride of iron. It is found in drug stores in a fluid form, though sometimes in powder. There is immediately a moderate sensation of pain, constriction, or burning. In a few minutes the tender surface is felt to be dried up, tanned, or mummified, and it ceases to be painful. The patient, who before could not put his foot to the floor, now finds that he can walk upon it without pain. By permitting the hardened, wood-like flesh, to remain for two or three weeks, it can be easily removed by soaking the foot in warm water. A new and healthy structure is found, firm and solid, below. If thereafter the nails be no more cut around the corners or sides, but always curved in across the front end, they will in future grow only straight forwards; and by wearing a shoe of reasonably good size and shape, all further trouble will be avoided.

Another method is with a knife, or a piece of glass, scrape the center of the nail until it becomes as the thinnest paper; then cut the nail in the form of a crescent, the convex side being inward. This will compel the sides of the nail to grow outward in the natural way.

Toilet, The.

In the first requisite, viz., that of dress, we may say, health and comfort first, ornament next. The dress should be plain, neat, clean, loose, and rather light than heavy. It should be plain and neat, because these are the ele-

ments of true beauty; and because God clothed our first parents in simple skins, thus showing the great design of dress to be utility, and not ornament. Dress should be clean because it is demanded by decency and good taste; it should be loose and light so as to avoid all oppression and restraint, so that every muscle may have the most perfect freedom of motion, while mind and body are equally at ease.

Toilet Vinegar.

Half a pint of Bordeaux, or of the best white wine vinegar; half a pint of pale rum; essence of bergamot, rosemary, and marjoram, a drachm each; and one pint of rose or elder flower water. Mix the perfumes with the spirit, then add the vinegar, and lastly, the rose water. If not perfectly bright, it may be strained through the blotting paper.

The Toilet—Vaseline for.

The toilet soap and tar soap made from vaseline are superior in emollient and healing properties, to similar preparations from glycerine. For the hair an excellent hair tonic and pomade are supplied, which have the effect not only of strengthening, but of promoting its growth. For the complexion, vaseline cold cream should be used, and for the lips, when sore and chapped by cold winds or any other cause, vaseline camphor ice.

Tonics.

Tonics are medicines which are given with the intention of promoting nervous tone, and thereby conveying to the various organs the vigor which is thus produced through the nervous system. Tonics are generally believed to be only applicable to certain conditions of health which produce debility by an inefficient action of the stomach. This, however, is not in-

variably the case, as tonics can be prescribed which will affect various organs individually—such as a tonic for the stomach, for the liver, kidneys, or womb, etc. The most useful tonics which are known are those which exert a specific action upon the nerve apparatus—such as strychnine, quinine, zinc, the mineral acids, the bitter infusions, tinctures, etc. No medicine, however, can be considered a tonic which does not act in the first instance upon the nervous apparatus which supplies the organ intended to be influenced. Of course, beyond medicine, many things act as tonics, among which may be mentioned a wholesome and easily digested diet, a regular regimen as to hygienic measures, change of air to the country, or to the seaside, rest from business, accompanied by relaxation of one kind or another—such as golf, tennis, fishing, shooting, hunting, all of which are tonics when taken advantage of in their proper places.

Elixir of Pyrophosphate of Iron and Bark.—Pyrophosphate of iron 128 grains, simple syrup 2 ounces, water 6 ounces, tincture of bitter orange peel 2 ounces, alcohol, dilute, 6 ounces, sulphate of quinia, 6 grains, sulphate of cinchona 3 grains, sulphate of quinidia, 3 grains. Put the water, pyrophosphate of iron, and half an ounce of the simple syrup into a pint bottle, and shake occasionally till the pyrophosphate of iron is dissolved. Into a another pint bottle put the diluted alcohol, tincture of bitter orange peel, and the sulphates of quinia, cinchona, and quinidia, and shake occasionally till these salts of bark are dissolved—then add the whole to the bottle containing the pyrophosphate of iron, and shake till mixed, after which filter through paper, and add the remainder of the syrup; mix by shaking, and the preparation is ready for use.

Tonic Syrup of the Phosphate of Iron.—Take of phosphate of iron 96 grs.; water 9 fl. drs.; syrupy phosphoric acid (Sp. gr. 1.5) 7 fl. drs.; syrup 10 fl. oz. Rub the phosphate of iron with the water in a glass mortar, add the phosphoric acid, and filter the mixture into the syrup.

Tonic Syrup of Phosphate of Iron and Lime.—Take of phosphate of iron 96 grs.; phosphate of lime 192 grs.; water 8 fl. drs.; syrupy phosphoric acid 8 fl. drs.; syrup 10 fl. oz. Mix the powders with the water in a glass mortar, add the acid, and filter into the syrup. Each fluid drachm contains 1 grain iron, 2 grains lime, and an equivalent to 30 minims dilute phosphoric acid.

Tonic Syrup of Phosphate of Iron and Quinine.—Take of phosphate of iron 192 grains phosphate of quinia 96 grs.; water 7 fl. drs.; syrupy phosphoric acid 9 fl. drs.; syrup 10 fl. oz. Rub the powders with water, add the acid, and filter into syrup. Each fluid drachm contains 2 gr. iron and 1 gr. quinine.

Tonic Syrup Phosphate of Manganese.—Take of phosphate of manganese 96 grs.; water 9 fl. drs.; syrupy phosphoric acid 7 fl. drs.; syrup 10 fl. oz. Dissolve the manganese in the water, add the acid, and filter into the syrup, as above. Strength, 1 gr. manganese salt and 25 minims of acid to fluid drachm. The dose of all these tonics is a tea-spoonful in water after meals. Much depends upon the regularity with which any one of these tonics is taken.

Tonic Syrup of Tar.—Tar (strained) 1 ounce (troy); pulverized sugar (refined) 12 ounces (troy); carbonate of magnesia 3 ounces (troy); rubbed to a powder on a sieve. Alcohol 2 fl. ounces; water a sufficient quantity. Mix the alcohol with six fluid ounces of

water, rub the tar in a mortar of sufficient capacity with one ounce of the sugar, and then with the carbonate of magnesia, gradually added, until the whole is reduced to a uniform, pulverulent mixture. To this constantly add with constant trituration, which should be continued for fifteen or twenty minutes, four fluid ounces of the mixture of alcohol and water; then strain with strong expression. Return the residue to the mortar, and again triturate, first with one ounce of the sugar, and then with the remaining four fluid ounces of the mixture of alcohol and water, gradually added, as before; finally strain and strongly express, and then reduce the dregs by trituration to a smooth and uniform condition, and pack firmly in a glass funnel prepared for percolation, and adjusted to the neck of a graduated bottle containing the remainder of the sugar, and pour upon this the expressed liquid; and when it has all disappeared from the surface continue the percolation with water until the whole measures one pint. Agitate occasionally, until the sugar is dissolved, and strain if necessary. Dose: from a dessert to a tablespoonful.

The strained tar, such as is usually sold in gallon cans, answers well for this purpose, but when it is not at hand the crude tar may be dissolved in a small quantity of ether and strained, and the ether allowed to evaporate spontaneously.

Wine of Wild Cherry Bark.—Alcoholic extract (from 24 ounces) of wild cherry bark, $5\frac{1}{2}$ ounces; sweet almonds, 3 ounces; water, 1 pint; sherry wine, 2 pints. Beat the almonds with the water to a paste, rub down the extract with half a pint of the wine, and mix the two liquids in a bottle of the capacity of three pints, stop it closely, and permit it to stand

for three days, with occasional agitation; then add the remainder of the wine, allow it to stand a week and filter. By this mode of proceeding, opportunity is afforded for the development of the hydröeyanic acid before the menstruum is made so alcoholic as to retard the reaction which favors its formation. Thus made, wine of wild cherry bark is a transparent, wine-red liquid, having an astringent bitter-almond taste and odor, much less agreeable than the syrup, and of about the same strength. The dose of this preparation as a tonic and sedative is a teaspoonful.

Tonsils.

Tonsils are the glands which are situated at each side of the throat, and which are enclosed in the pillars of the fauces or soft palate. These glands secrete a tenacious mucous fluid, and in consequence of the tenacity of this fluid it is liable to entrap certain substances in their progress towards the stomach, among which may be mentioned the germs of certain diseases such as scarlet fever and diphtheria, and therefore, in consequence of this mucilaginous secretion, the tonsils are frequently affected in contagious or infectious diseases. Doubtless it is through the tonsils that diphtheria finds its entrance to the system at large. The tonsils are also liable to inflammation, which may in many instances proceed to suppuration or quinsy. This condition should always be looked upon with suspicion, as it almost invariably indicates a rheumatic tendency of the individual; and in short, quinsy may with perfect safety be looked upon as an indication of a tendency to acute rheumatism or some other rheumatic affection. It is a disease, however, which need never take hold of an individual, but may always be combated

by the physician's insisting upon the bowels being kept open every day, while the following mixture should be taken at regular intervals of two hours;—Salicin and chlorate of potash, of each $2\frac{1}{2}$ drachms; guaiacum mixture to make six ounces—a dessertspoonful to be taken every two hours; while the throat should be gargled with sulphurous acid and water at frequent intervals also. In many instances the tonsils become chronically enlarged in consequence of some slight inflammatory attack having located itself within these glands. If they do not subside by the frequent application of the glycerine and tannin it is possible that they may require to be excised. This operation, however, is entirely devoid of danger, and can be accomplished without pain. It is extraordinary what an influence the muriate of calcium, combined with the syrup of the iodide of iron, has upon enlarged tonsils; for a child ten years old 6 grains of the former with 10 drops of the latter may be given three times a day in water, with considerable benefit. (See Quinsy.)

Toothache—Remedies for.

Sometimes a sound tooth aches from sympathy of the nerves of the face with other nerves. But when tooth-ache proceeds from a decayed tooth either have it taken out, or put hot fomentations upon the face, and hot drinks into the mouth, such as tincture of cayenne.

Another.—One drachm of alum reduced to an impalpable powder, three drachms of nitrous spirit of ether, mix, and apply them to the tooth on cotton.

Another.—Mix a little salt and alum, equal portions, grind it fine, wet a little lock of cotton, fill it with the powder and put it in your tooth. One or two applications seldom fail to cure.

Another.—To one drachm of colloidion add two drachms of dilute

carbolic acid. A gelatinous mass is precipitated, a small portion of which, inserted in the cavity of an aching tooth, invariably gives immediate relief.

Another.—Saturate a small bit of clean absorbent cotton with a strong solution of ammonia, and apply it immediately to the affected tooth. The pleasing contrast instantaneously produced in some cases causes a fit of laughter, although a moment previous extreme suffering and anguish prevailed.

Another.—Two or three drops of essential oil of cloves put upon a small piece of lint or cotton, and placed in the hollow of the tooth, will be found to have the active power of curing the toothache without destroying the tooth or injuring the gums.

Torpor.

Torpor is a condition of semi-coma, and always indicates some injury to, or disease of, the nervous system. If it is impossible to rouse a patient from the state of torpor into which he has fallen, either as a consequence of disease or the administration of a narcotic, the greatest fears may be naturally indulged in. Torpor, in fact, is another name for torpidity of the nervous system, and this, as is well known, is either due to the direct action of poison or of disease.

Trichiniasis.

Trichiniasis is a disease which has given rise to a very considerable alarm in consequence of its painful and disgusting nature. It is due to the invasion of the muscles of the human frame by a minute worm called the "trichina spiralis," and is generally developed by eating under-cooked pork, the pigs from which it has been procured having been infested with this disorder. The disease sets in within a few days after eating the in-

fected meat, and commences with loss of appetite, sickness, prostration, fever, pains in the limbs, swelling of the face, copious perspiration, and other signs of depression. In the worst forms of the disease these symptoms are accompanied by incessant vomiting and diarrhœa, resembling very much the symptoms of typhoid fever, with which disease it at many times has been confounded. Although trichiniasis is such a loathsome disease it at times is not necessarily fatal, as the minute worms which find their way into the muscles of the individual may become surrounded by a capsule, and thus separated as it were from the muscle, where it remains embedded, causing little or no disturbance. It is needless to say that if such a disease is suspected a physician should be consulted immediately.

Tumor.

Tumor is an adventitious growth taking place in any organ or tissue of the body. Tumors may occur in the brain, in the stomach, liver, womb, ovaries, testicles, muscles, fatty tissue, skin, nerves, etc. In very many instances—such as the brain, tongue, gums, throat, larynx, womb, ovaries, abdomen, muscles, and fat—they can be removed by a surgical operation, and, as a rule, these operations can be accomplished with comparative safety.

Tumors—Camphorated Ointment for.

Mix half-an-ounce of camphor with one ounce of lard, having, of course, previously powdered the camphor, by adding a few drops of spirits of wine. Use as a discutient and stimulant in indolent tumors.

Ulcer.

Ulcer is a term which is applied to a destruction of the cutaneous tissue or mucous membrane. It literally means an eating away of the surface.

and is invariably due to the fact that healing has not been encouraged by the prevention of the development of the germs of decomposition which have invaded the wound or injured surface. When a wound does not heal by first intention, or without suppuration, this is due to the invasion of certain organisms which have taken possession of the injured portion of the surface, and by developing therein prey upon the tissues, weakening the surrounding integument and attacking it, thus extending the area of the disease. The treatment therefore consists in the application of antiseptics, which destroy the vitality of these organisms and enable the weakened tissues to recover their health to a sufficient degree to enable them to complete the repair of the part. A great deal can be done in aiding the healing of an ulcer by keeping the limb or part at rest and in the horizontal posture, while the debilitated portion may be stimulated by strapping the ulcer by means of ordinary adhesive plaster, at the same time dusting the raw surface with aristol, iodoform, or any other bland antiseptic. Ulcers very frequently occur upon the stomach, womb, and bowel, and in these circumstances the diet of the individual should be adapted to the weakened condition of the mucous membrane of the stomach; while antiseptics may be administered with a view to prevent the development of the organisms which are essential to the existence of the ulcer; while in the bowel, if within reach, the parts can be treated locally, and this method is also advisable in the treatment of ulcerations of the womb. In every instance, however, it would be advisable to consult a competent physician. Ulcers frequently arise from local irritation, such as that produced by the application of a bandage which has been put

on too tightly, by lying in one position in bed, when the tissues are destroyed by continual pressure, as in bed-sores. They are also produced by the presence of varicose veins, and by an unhealthy condition of menstruation.

Catechu Ointment.—Mix one ounce of powdered catechu, two drachms and a half of powdered alum, one ounce of powdered white resin, and two ounces and a half of olive oil together. Use for flabby and indolent ulcerations.

Ointment for Scrofulous Ulcerations.—Mix one drachm of oxide of zinc and one ounce of lard together. Use twice a day on the ulcerations.

Opium Lotion.—Mix two drachms bruised opium with half a pint of boiling water. Use, when cold, for painful ulcers, bruises, etc.

Stimulant Lotion.—Dissolve one drachm of caustic potash in one pint of water, twenty-four grains of camphor and one drachm of sugar, previously bruised together in a mortar. Use for fungoid and flabby ulcers.

Turpentine Liniment.—Take two ounces and a half of resin cerate, and melt it by standing the vessel in hot water; then add one ounce and a half of oil of turpentine, and mix. Use as stimulant to ulcers, burns, scalds, etc.

Urine.

Urine, or the secretion of the kidneys, conveys from the body certain products of decomposition. In some circumstances, however, it may contain blood, albumen, sugar, and an excessive quantity of urates, which is designated "gravel." The secretion of urine is one of the most important in the human economy, as a healthy urine is usually an indication of a sound condition of the individual. When the urinary secretion produces irritation in the

canal this is generally due to its condition being too highly acid, and this will usually be demonstrated by the fact that a brickdust-looking deposit takes place in the urine when it has cooled. This peculiar condition very frequently indicates the presence of rheumatism or gout within the system, and if the direct evidence of these affections has not manifested itself, yet the very fact of this red deposit being present should make the physician suspect that such a contingency may be near at hand. When the urine contains albumen, such a symptom is looked upon with very great gravity by the physician, as it invariably indicates an unhealthy condition either of the heart or kidneys. When sugar is present the disease called "diabetes" is known to exist, and in such circumstances there is also to be dreaded very serious results, and the greatest care must be taken to diet the patient in such a way that his nourishment will be assured, while the sugary constituents of the food will be abstained from. In many instances the urine is a very powerful aid in the diagnosis of nervous disorders, as well as those of the bladder; e. g., if a person is passing very large quantities of urine of a pale appearance and of light specific gravity, the physician will generally infer from this that there is some cause of nervous irritation present, whereas, if the urine is of a high color, it usually indicates fever or intense nervous prostration, while in many instances this may be due to the presence of bile or blood within the urinary secretion. A careful examination of the urine in any of these circumstances will enable the medical attendant to arrive at the exact cause of the abnormal condition. When the urine is passed at frequent intervals, and

the last few drops are expelled with considerable pain, it may be concluded that the bladder itself is the seat of the disease, and that considerable irritability of its membrane exists. In many instances when the urine is passed it will have the appearance as if water had been mixed with milk in small quantities. On boiling this fluid the milky appearance will still be retained, but on adding an acid in small quantities it will disappear. This is usually the evidence of the presence of phosphates in the urine, and in such circumstances the fluid is invariably alkaline in reaction. When the urine, on being passed, possesses a creamy look it will also be found to be alkaline in reaction, but on boiling and adding acid it will still retain its yellow and viscid appearance. In such circumstances the presence of pus should be suspected.

The Normal Condition of the urine presents the following characteristics: It should possess a pale brandy appearance in color, have an acid reaction, and a specific gravity varying from 1015 degrees to 1022 degrees. The quantity passed will be greater in winter than in summer, in consequence of the fact that a larger amount of vapor is passed from the skin in summer than in winter, but the average quantity should be about 30 to 40 ounces per day. In urine there is always to be discovered a certain amount of mucus, which is thrown off naturally by the mucous membrane of the bladder. This, when the fluid is allowed to stand in a glass vessel, presents the appearance of a very filmy-looking cloud suspended in the centre of the fluid. When urine possesses a heavy odor this indicates the fact that decomposition has been going on to a certain extent, and in these circumstances the urine will usually be alkaline in re-

action. Now, whenever urine does not give an acid reaction it has to a certain extent departed from the healthy standard, and precautions should at once be taken to rectify this condition of things. When urine contains blood of a dark, dull-brown appearance one may reasonably infer that the source of the hæmorrhage is in the kidneys; when, however, it appears bright red we may conclude that the bleeding is coming either from the coat of the bladder itself or from the prostate gland, which lies at the base of the bladder close to its orifice. A healthy condition of the urine is one of the best indications of health, whereas an unhealthy condition should invariably be looked upon with the greatest amount of apprehension.

Vaseline for Medicinal Use.

The pure jelly itself, without any addition, is an invaluable family remedy for burns, chilblains, chapped hands, and skin roughened by exposure to wind and water in cold weather; as well as for sunburns, wounds, sprains, and all diseases of the skin; for inflamed eyelids, and for pitting in small-pox, when used externally as an ointment. When taken internally, in dose of half a teaspoonful, or in smaller quantities, it forms a cure for diseases of the throat, chest, and stomach, and gives speedy relief in cases of diphtheria, croup, etc. For convenience in using it, a confection is prepared from it for complaints of the throat and lungs.

Vomiting.

Vomiting is a convulsive effort of the stomach by which it discharges through the gullet a portion of all of its contents. It may be produced by direct irritation from substances which have been ingested, such as unsuitable food; by the effects of mechanical irri-

tation, such as some of the poisons, or by nauseating drugs, of which ipecac may be taken as a fair example. Vomiting, however, frequently is the result of disease, and it may also be caused by blood either being swallowed or being effused by the mucous coat of the stomach. Certain diseases, such as dyspepsia (especially when this is due to the development of sarcinæ within the organ), irritation of the mucous membrane, ulceration, cancer, etc., all induce vomiting, this being due to the irritable condition of the organ which obtains. Vomiting, as is well-known, may also be caused by reflex irritation, as in certain diseases of the ovaries, in pregnancy and sea-sickness. Obstinate constipation may also induce it, and when this has proceeded to an extraordinary extent, stercoraceous vomiting may result, this distressing condition being due to the intestines reversing their action and carrying fecal matter into the stomach.

Remedies.—Various remedies are advocated, among which may be recommended a simple diet, if need be the food to be partly digested by being peptonized before it is partaken of; the administration of pepsin and bismuth, which are useful agents when taken immediately after food; effervescent drinks, powdered ice, drop doses of ipecacuanha wine, morphia in very small doses, carbolic acid, phenacetine, etc., have all been recommended, and doubtless are useful agents in overcoming these distressing symptoms. The application of mustard over the pit of the stomach will often prove of great benefit, and in sea-sickness, a bandage tightly applied round the abdomen and lower portion of the chest will frequently be found of considerable service. In every instance where vomiting is persistent it is highly desirable that the lower bowel be kept in a state of daily action.

Obstinate Vomiting—Lime Water for.

Lime, three-fourths of a pound; distilled water, twelve pints. Shake the lime with a little water, add the remaining water and shake; set the covered vessel aside for three hours, keep the liquor and lime in stopped glass vessels, and when it is required, decant the clear portion for use. Antacid, lithontriptic. Allays obstinate vomiting, is used as an astringent in dysentery, and, with sarsaparilla, as an alterative in cutaneous diseases or impaired digestion. Dose, one to three ounces, combined with an equal quantity of milk.

Vomiting of Blood, or Hæmatemesis.

Hæmatemesis, or vomiting of blood is applied to that particular form of bleeding which takes place from the stomach, in contra-distinction to hæmoptysis, which is bleeding from the lungs. Frequently great alarm is excited by what would appear to be vomiting of blood, when in reality the blood has been swallowed, such as in bleeding of the posterior nares and bleeding from the gums. It is a curious fact that the stomach will not retain fresh blood, but immediately rejects it. Sometimes the blood becomes partly digested, in which circumstances its appearance is completely altered and resembles coffee grounds; this in every instance may be taken as a diagnostic feature of the blood having come from the stomach.

Walking.

No exercise is better for the average person than proper walking. To walk properly one should keep the head up, the chin, chest, and toe of the advancing foot on the same vertical line. The breathing should be deep and slow, and the motion free and easy, as if one were about to soar away. Nothing will pay

you better, or give you more pleasure than to learn to walk properly. When walking for exercise go a little faster than your usual pace.

Walking—Long Distance.

A well-known, long-distance walker, of New England, gives some valuable advice to walkers. He gives, as the most convenient outfit, knickerbockers, heavy woolen stockings, strong and comfortable high shoes of heavy sole and low heel, flannel shirt, necktie, coat, a soft hat of light weight, a large strong umbrella, and a knapsack to be strapped on the shoulders. The knapsack holds an extra pair of shoes, an extra pair of stockings, extra underwear, and an extra pair of knickerbockers. The knapsack does not weigh much and it causes one to walk straight with shoulders back. In case of storm the umbrella shields the upper part of the body and the knapsack, which holds dry clothing for the lower part of the body, so one can travel right on and still be comfortable for along journey.

The changing of the stockings or socks, is an immense relief to the feet on a long walk. If you have only one pair of socks, bathe the feet in the middle of the day, and change the socks from one foot to the other, as this brings small knots, seams, and imperfections in the sock onto new parts of the skin, and will save one from blistering the feet.

At night wash the feet with hot water to which some ordinary salt may well be added, and rub well with a rough towel. It often keeps the feet from blistering to sprinkle some talcum powder, or some face powder, inside the shoe before a long walk. The powder reduces the friction in the shoe and absorbs the perspiration.

Warts.

Warts are a hypertrophied condition of the epithelial layer of the skin, and

are of a horny structure. In every instance they are disfiguring, especially when they appear upon the face. They can, however, generally be removed by the application of strong acetic acid, or chromic acid, both of which substances have a destructive effect upon epithelial structures. When the wart is pedunculated, as frequently happens, they can either be snipped off with a pair of scissors or tied with a piece of fine silk, when they will soon drop off. Warts on the hands of children may be treated very efficaciously by administering five to ten grains of the sulphate of magnesia or Epsom salts in a little water three times a day. When warts are irritated, especially those which occur in elderly persons, they are apt to degenerate into a malignant growth called epithelial "cancer." When, therefore, it is desirable that a wart in an elderly person be removed, care should always be taken to do this in such a way as to secure the removal of a certain amount of healthy tissue in its immediate neighborhood.

Warts—Other Methods to Remove.

Pare the hard and dried skin from their tops, and then touch them with the smallest drop of strong acetic acid, taking care that the acid does not run off the wart upon the neighboring skin, for if it does, it will occasion inflammation and much pain. If this practice be continued once or twice daily, with regularity, paring the surface of the wart occasionally, when it gets hard and dry, the wart may be soon effectually cured.

Another.—A mixture of two parts of nitric acid to one of muriatic acid is a good remedy for warts. It should be applied to the warts with a small brush from a broom, and care must be taken not to get acid on the flesh, as it will make a sore. Salcratus will counteract the action of the acid.

Another.—Take a piece of diachylon plaster, cut a hole in the center the size of the wart, and stick it on, the wart protruding through. Then touch it daily with aquafortis, or nitrate of silver.

Another.—Take a blacksmith's punch, heat it red hot, and burn the warts with the end of it. When the burn gets well, the warts will be gone forever.

Another.—Scrape down enough dry cobwebs to make a ball large enough to a little more than cover the wart and not touch the flesh around the same; lay it on top of the wart, ignite it, and let it be until it is all burnt up. The wart will turn white and in a few days come out.

Another.—Pass a pin through the wart; apply one end of the pin to the flame of a lamp; hold it there until the wart fries under the action of the heat. A wart so treated will leave.

Another.—Dissolve as much common washing soda as the water will take up; wash the warts with this for a minute or two and let them dry without wiping. Keep the water in a bottle and repeat the washing often, and it will take away the largest warts.

Another.—They may be cured surely by paring them down until the blood comes slightly, and then rubbing them with lunar caustic. It is needless to say that this hurts a little, but it is a sure cure. The hydrochlorate of lime applied in the same way will cure after several applications and some patience; so will strong wood vinegar, and so, it is said, will milk weed. The cures founded upon superstitious practices, such as muttering some phrases over the excrescence, stealing a piece of beef rubbing the wart therewith and then burying it under the leaves to await its decay, etc., etc., are all the remnants of a past state of ignorance and are of no use whatever. Warts are generally

only temporary and disappear as their possessors grow up.

Water.

Water, so abundantly distributed over the face of the globe, is most essential to the maintenance of health both of plants and animals. It is much more important even than food, as one could live much longer on water alone than on food alone. It enters largely into the composition of every living substance, the human body for instance, containing as much as 80 per cent. of water. The amount of water required by the human frame depends entirely upon the character of the food which is partaken of — e. g., if vegetables and fruit enter largely into the dietary, then water will be less necessary; whereas, if the food is of a drier nature, water will require to be taken in more considerable quantities. Although water is such an important fluid, and, when pure, is so beneficial, yet by it many diseases are communicated to the human body—as, for example, cholera, typhoid fever, dysentery, and doubtless many others. Water, when pure, should contain no living organism; but when it holds in solution organic matter, it is thereby enabled to act as a nidus to various microscopic bodies, some of which are innocent, while others are most pernicious in their effects when taken into the system. The composition of this fluid is two atoms of hydrogen combined with one of oxygen, and remains fluid until 32° F. is reached. At a temperature of 212° F. it becomes vapor, and passes off in the form of steam, in which condition it is frequently employed as an inhalation.

Water Brash.

This consists of a discharge from the stomach, generally in the morn-

ing, of a thin, glairy fluid, sometimes insipid, often sweetish, and at other times, sour. A burning heat or pain of the stomach attends it, and seems to cause the discharge. The amount thrown up varies from a spoonful to a pint or more. The complaint is caused by a poor, in-nutritious diet, or by whatever causes the blood to become thin and watery.

Treatment.—Ten or fifteen drops of ammonia-water, in half a tumblerful of cold water, will quiet the distress, and stop the discharge; The best remedy for this discharge, is the trinitrate of bismuth, taken at meal times, three times a day, in thirty-grain doses. The tincture of nux vomica is good. The blood should be restored by tonics of some preparation of iron, and the food should be nourishing and digestible.

Wens—To Cure.

Dissolve copperas in water to make it very strong; now take a pin, needle, or sharp knife, and prick, or cut the wen in about a dozen places, just sufficient to cause it to bleed; then wet it thoroughly with the copperas water, once daily.

Whiskers—To Make Grow.

Shave the beard at least three times a week, and use the following as a stimulant: cologne, 1 ounce; alcohol, 1 pint; castor oil, $\frac{1}{2}$ pint; oil of cloves, 20 drops; oil of bergamot, 20 drops; tincture of cantharides, 2 ounces.

Whitlow.

There are very few affections that commence so simply but afterwards become so painful and serious in their results as whitlow. It is most frequently found in people in a low state of health and in nervous and delicate women. The commencement of an attack is generally marked by pain and redness in the finger,

or palm of the hand, as the case may be. The pain, slight at first, becomes gradually more intense and throbbing, and entirely prevents sleep. The patient suffers from loss of appetite, and falls into an irritable state from the constant pain and want of sleep, and in some severe cases, unless relief is obtained, delirium may come on. Whitlow is sometimes found as a consequence of certain constitutional diseases, and may also be caused by wounds from a thorn, a splinter of wood, a rusty nail, or the sting of a fish. The latter is a common cause among fishermen.

Wild Cherry Bark.

The bark of the tree and kernels of the cherry contain a great deal of prussic acid, to which their medicinal virtues are to be attributed. The bark is a very powerful anti-septic, and is very useful in the preparation of dentrifice. It is also useful in diarrhœa, jaundice, and for worms. Generally taken in infusion, an ounce of the powder to a quart of boiling water. The cherries also are used in medicine, and may be employed with or without peach-kernels. They are useful as a tonic and a remedy for indigestion, and particularly as a restorative for convalescents from dysentery. Made in a syrup, or bruised and given in decoction.

Wind in the Stomach, or Flatulence.

Flatulence, or wind in the stomach is a collection of gas generated in the stomach and bowels, and in every instance is the result of indigestion. The badly digested mass becomes decomposed by fermentation, giving rise to acidity and a gas which we call Flatulence. The most important measures to adopt in this disorder are to prevent its formation by attention to the diet, and promote

a healthy condition of the stomach. The foods which conduce to the formation of windy flatulence are—over-infused tea, soups, butcher meat which is boiled or stewed, and other articles which are well known to be indigestible. Perhaps the best remedy for flatulence, as a general rule, is charcoal, which has the power not only of absorbing the gas, but which also acts as a destructive agent upon the ferment. When flatulence proceeds to such an extent as to produce distension of the stomach and bowels, it may be the cause of very considerable inconvenience, by interfering with the free movements of the chest. Thus, breathlessness and palpitation are frequent concomitants of flatulent distension. If the flatulence accumulates in large quantities in the lower bowel, great relief may be obtained by an enema containing turpentine one ounce, castor oil two ounces, the yolk of one egg, and a pint of thin gruel, all switched together and injected into the bowel. This enema may be retained quite comfortably for four or five hours.

Worms.

Worms are very prevalent among children, especially in country districts. They are a source of more annoyance than actual danger, though not unfrequently they give rise to serious complications, such as convulsions. The symptoms produced are picking at the nose, grinding of the teeth, starting in the sleep, feverish attacks especially at night, fretfulness, restlessness, languor, variable appetite, changing color, pinched and thin look about the nose and mouth, dark rims around the eyes, ashy complexion and itching around the anus. In girls I have frequently seen inflammation of the vagina set up by thread-worms finding their way from the rectum into this passage. We must not forget, however, that

many of these symptoms may be due to constipation, even when no worms are present. As a natural consequence delicate and weakly children, especially those of a scrofulous habit, are more liable to worms than strong children. These parasites are always introduced into the body either by means of food or water; hence their more frequent occurrence in country districts where surface water is used for drinking purposes. The varieties of worms are:

The Long Thread Worm, whose habitat is the large intestine; it is long and slender, and may be two inches in length.

Ascaris, or Thread Worm, which is very common; it resides in the rectum, and sometimes comes away in large bunches.

Round worm, or Lumbricus, which occupies the small intestine, and frequently is vomited up; and I have known them to be expelled through the nostrils after an attack of vomiting. In these circumstances they have crawled into the stomach. They resemble in appearance the common earth-worm, and measure from three to nine inches in length.

Tape Worm, which also inhabits the small intestines. Recently a very simple and efficacious method of treating tape-worm has been advocated—viz.: the administration of a tablespoonful of a saturated solution of chloroform in water every hour for eight or ten consecutive hours, and this to be followed by a smart dose of castor oil, when the worm is said to be expelled in its entirety. Another quite as effectual, but certainly much less pleasant, mode of treating the disease is to administer ten grains of naphthaline every three or four hours till three doses have been taken. These two drugs appear to have a sickening effect upon the tape-worm and cause it to lose its hold on the intestine, when, of course,

it can be readily swept away by means of a purgative. It should, however, be always borne in mind that "tinea solum" is a misnomer, as frequently several tape-worms have been discovered to exist in the same individual.

Treatment.—The treatment of worms which infest the lower bowel is best carried out by means of injections, combined with powders containing calomel and scammony. A dessert-spoonful of common salt dissolved in a breakfast-cupful of an infusion of quassia is very efficacious in dislodging these parasites. Another excellent vermifuge is a breakfast-cupful of an infusion of quassia to which has been added a dessert-spoonful of tincture of iron, and employed as an injection. The food of the child should be well cooked, and eaten with plenty of salt, and fifteen drops of tincture of iron may be given in water three times a day after food, or, if preferred, a powder of calomel and scammony may be given every second morning before breakfast. The following is the dose for a child three years old: Calomel, one grain; compound powder of scammony, three grains. Mix. To be given in sugar and water before breakfast. For round-worms the best remedy is san-tonine, in doses of from one to two grains, given at bed time (the child having no supper that night), followed by a dose of castor oil in the morning before breakfast. This may be repeated every third night three times. This drug sometimes gives rise to giddiness, disordered vision, sickness, and a peculiar tint to the urine, all of which symptoms soon pass off. Tape-worms are sometimes very difficult to remove, from the fact that the head is not easily dislodged from its attachment, and if every vestige of the worm is not gotten rid of it will grow again. One of the most popular remedies is

oil of male-fern, of which ten to thirty drops may be given in milk or gum mucilage. Beforehand, the patient should fast for some hours, then a dose of castor oil be given at bedtime, and in the morning the oil of the male-fern administered, and in four or five hours afterwards another dose of castor oil. Turpentine and castor oil are also useful remedies, but it requires a large dose of each, from a half to two teaspoonfuls of the former mixed with a dessert to a tablespoonful of castor oil. The oil of male-fern and turpentine frequently succeed in dislodging the round-worm also. Koussou in drachm or two drachm doses, succeeded by a good dose of castor oil six hours afterwards, is my favorite remedy. I have found it often to succeed when all other remedies have failed. When worms have been got rid of, it is always wise to advise the patient to take a tonic of tincture of iron and infusion of quassia for a few weeks afterwards. Instructions should be given that no raw meat, especially pork, be partaken of. In conclusion, we must always bear in mind that many distressing and apparently alarming symptoms may be due to the presence of worms—such as epilepsy, convulsions, giddiness, fainting, perversion of vision, squinting, dysenteric diarrhœa, etc. Thread worms are indicated by itching around the anus; straining at stool and giddiness point to round-worms; and gnawing pain, usually felt above the navel, to tape-worm.

Worms—Turpentine Enema for.

Take half an ounce of oil of turpentine, the yolk of one egg, and half a pint of gruel. Mix the turpentine and egg, and then add the gruel. Use as an anthelmintic.

Worms—Cowhage for.

Mix in syrup as much of the fine hairs or spiculæ of cowhage as the

syrup will take up. Dose, a teaspoonful every morning and evening. Use as an anthelmintic.

Worm—Tape.

Tape-worm is one of the parasites which infest the intestines of various animals. That found in man is generally due to the eating of raw or underdone meat, which contains the larva of the worm. It cannot develop from the egg within the human intestine, it being necessary to its development that the egg be taken into the stomach of some herbivorous animal, such as the pig, sheep, or ox. Within the stomach of any of these animals the egg becomes developed into a small object called an "echino coccus." This little body is provided with a boring apparatus, by which it penetrates through the coats of the stomach and enters the circulation and locates itself in one or other of the fibrous tissues of the animal, where it remains encapsuled for an indefinite period, its cycle of existence being arrested. When the animal is eaten, and the flesh containing this echino coccus is taken into the human stomach, a further development of the parasite takes place until it reaches its adult existence, this being the tape-worm, which attaches itself by means of two hooks situated on its head, to the mucous membrane of the bowel, from which it grows downwards attaining a length of twelve feet in many instances. The segments of the worm, at the lower portion, are constantly being thrown off, and appear in the stools; but until the head is detached the cure cannot be said to be complete, as it retains the power of still developing fresh segments, each of which contains the generative organs of both sexes. Each segment, therefore, is a bi-sexual organism capable of producing the fertilized eggs, which may at a future time give rise to a complete specimen of the tape-worm.

Among the many remedies which have been advocated for the cure of tape-worm are: pomegranate bark, cousoo, oil of male-fern, chloroform water, but the best of all, and probably the most recent of introduction into the pharmacopœia, is naphthaline, which seems to act as a direct poison to the parasite. Chloroform water, which is a saturated solution of chloroform in water, is also a very useful agent, and seems to have a paralyzing effect upon the worm, so that it loses its hold upon the mucous membrane of the intestine and can be cast off by means of a purgative. (See Worms).

Wounds.

Wounds are injuries to the human body which invariably produce the separation of the parts involved. They are classified as incised wounds, lacerated wounds, punctured wounds, poisoned wounds, and gunshot wounds. The treatment in every case should involve the one idea of preventing decomposition taking place within the injured part. The first duty then of those in attendance is to apply antiseptics, at the same time taking care to prevent hæmorrhage by securing any bleeding vessels that may present themselves, especially is this necessary in the case of hæmorrhage due to a division of an artery. Pressure, in the absence of the doctor, will be sufficient temporarily, but in any case where the hæmorrhage is severe it will be well to call in medical assistance. When the bleeding has been thoroughly stopped and the edges of the wound brought together, either by strips of plaster or stitches, the parts should be thoroughly cleansed by the application of an antiseptic fluid—such as carbolic acid in water in the proportion of one to twenty or forty, or a lotion composed of one part of bi-chloride of mercury in four thousand of warm water. The surface of the wound

should then be dusted over with a substance which also possesses antiseptic properties—such as iodoform, aristol, or boracic acid. The great point to be attained in the treatment of a wound is to endeavor to obtain union by what is termed first intention, that is union without suppuration intervening. As a rule this can usually be attained by the careful and efficient use of antiseptics; even when the parts are very much bruised this desirable end may be obtained if antiseptics are efficiently employed. In wounds on the face or any part which is highly vascular, stitches will not be so essential as in wounds upon the limbs or trunk, strips of sticking plaster being sufficient to keep the parts in approximation. If the wound is poisoned it will be necessary in such circumstances to take measures which shall either destroy the poison or at least extract it. If the poison is due to snake bite or the sting of an animal, the application of ammonia to the part will usually act as a neutralizing agent. If, however, this is not at hand, it will be necessary to excise the injured part so as to remove the deleterious substance which has been injected into the tissues. In bites from dogs it is usual to cauterize the parts with a view

not only of destroying the poison, but at the same time producing death in the part which has been affected. In many instances where the wound is lacerated or contused, dirt is liable to become adherent to the wound, and in such circumstances it will be necessary to induce suppuration by the free application of poultices or water dressing and, if need be, keep the wound open by means of some irritating substance such as blistering ointment. Suppuration frequently takes place in lacerated or contused wounds, and in such circumstances it is absolutely necessary that the part be kept perfectly at rest and in the horizontal position, while the surface or the ulcer may be dusted over once in twenty-four hours with aristol, when healing will usually be encouraged to the utmost.

Writer's Cramp and Cold Hands.

To strengthen the grip, and thus to cure writer's cramp, cold hands, etc., squeeze a rubber ball a number of times a day. Another method is to roll your handkerchief, or a newspaper, into a ball and use it instead of the rubber ball. Another good exercise is to place the finger tips against the wall, or some hard surface, and push them flat.

*As the blessed angels turn
The pages of our years,
God grant they read the good with smiles
And blot the ill with tears.*

MEMORANDA

We have inserted these few pages for memoranda. Occasionally you will come across some receipt or bit of information which is particularly good or practical. We feel it would be of advantage to have a place for such information. With care, these leaves can be made most valuable.

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